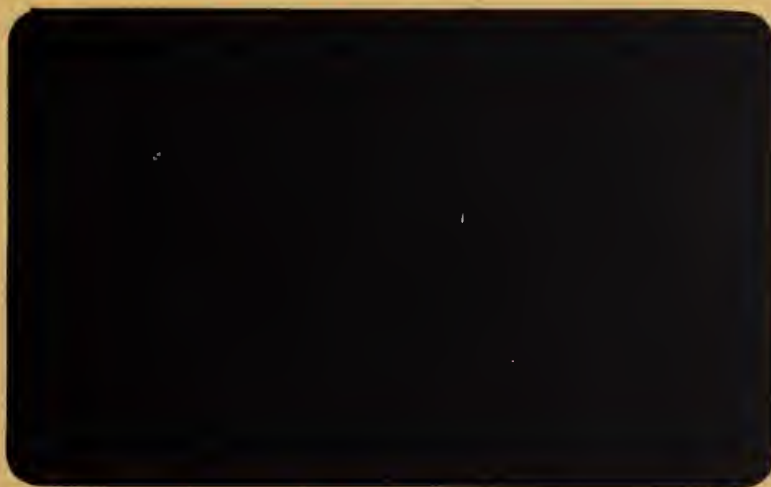


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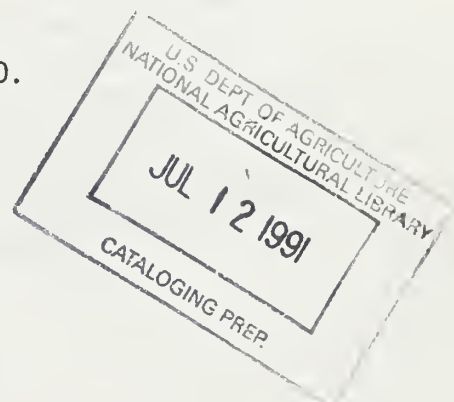
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THE SOCIOCULTURAL FEASIBILITY OF BURMA'S
EDIBLE OIL PRODUCTION AND DISTRIBUTION PROJECT:
TECHNOLOGY TRANSFER TO THE COOPERATIVE SECTOR
WITH NUTRITIONAL AND SOCIAL IMPACT

by

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October 1983

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This report was prepared for the Nutrition Economics Group, the Office of the Representative of the Agency for International Development, Rangoon, Burma, and the Office of Nutrition, Bureau for Science and Technology, Agency for International Development
Under RSSA Nutrition: Economic Analysis of Agricultural Policies

2015

Executive Summary

The social soundness analysis of the AID Edible Oil Processing and Distribution Project for Burma was conducted by the author as a part of a six-member design team working with the Office of the AID representative to Burma and a team of professionals from the Ministry of Cooperatives. The analysis took place between September 14, 1983 and October 19, 1983 in Rangoon and Magwe, Burma.

The report determines that the Project as designed by the team is socially sound, according to guidelines in AID Handbook 3, Appendix F. It is compatible with the socio-cultural environment introducing no culturally abhorrent elements and anticipating through design components potential problems with management, procurement, taste preference, size of purchase, marketing and industrial safety. An assessment of nutritional impact showed that no major negative impact is expected while a potentially positive impact is possible after several years of successful plant operations and introduction of economies of scale due to larger expected production. The analysis of spread effects shows positive social impact on technology transfer, planning, management and support for other development efforts. The assessment of distribution of benefits among groups shows a broad positive impact on the Cooperative sector, and private sector in the Magwe division with benefits also accruing to the government of Burma, the Ministry of Cooperatives and U.S. private manufacturers of equipment.

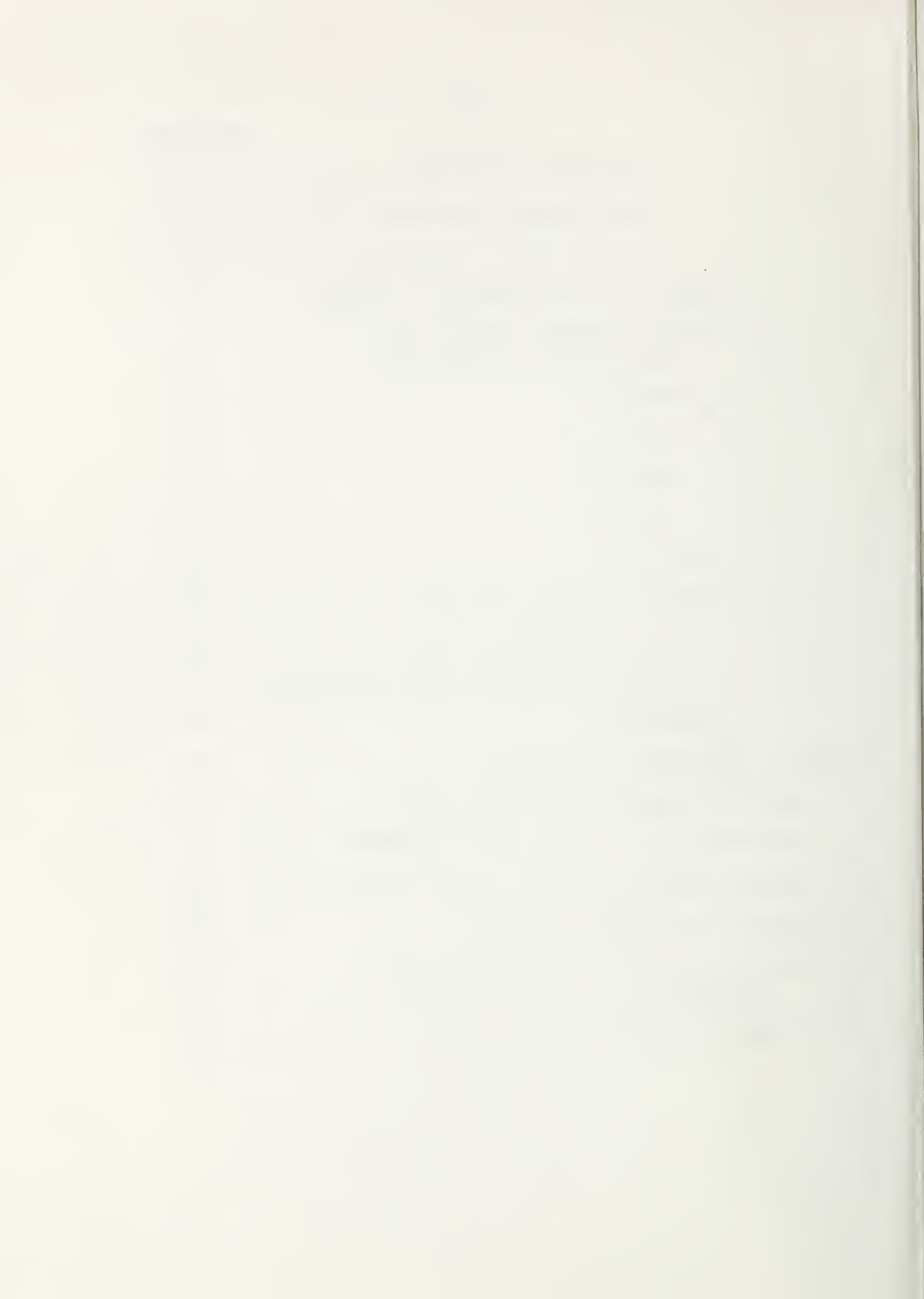


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Acknowledgements

This analysis was conducted as a part of the technical assistance provided under the Agency for International Development's project "Nutrition: The Economic Analysis of Agricultural Policies" under RSSA agreement between AID's office of Nutrition and the Department of Agriculture's Office of International Cooperation and Development, Technical Assistance Division Nutrition Economics Group. The travel arrangements for this activity were supported by the Bureau for Asia's Office of Technical Resources through its RSSA agreement with OICD for Asia Programs. The author thanks Nicolaas Luykx (S&T/N), Roberta van Haeften (OICD/NEG), Ralph Otto (OICD/TA/Asia), Loren Schulze, (Team Leader), Roe Borsdorf, (Team Economist), Jerry Zwyer, (Team Engineer), John Sheperd (Team Engineer), Marie Tun Myint (Participant Training Assistant), AID/Rangoon, Susan Ba Hla (Clerk Typist), AID/Rangoon, Evonne Tun Myint, Elsie Goodridge, Richard Nelson, Charles Simkins, Dennis Weller and Charles Ward for their assistance in backstopping and support. The author is deeply indebted to the staff of the Ministry of Cooperatives especially His Excellency, Minister U Sein Tun, Dr. Tun Aung Prue, Daw Margaret Aye Nyein, Daw Khin Swe Soe, Daw Cho Cho, Daw Nu Nu Aye, and U Htay Aung. She especially acknowledges the hospitality and warm reception of the Magwe Divisional Cooperative Syndicate and the Central Cooperative Society. Crucial professional support was provided by the Department of Medical Research, the officials of the divisional hospital and health department in Magwe and the Department of Cooperatives, Magwe office. The assistance and collegial spirit of Dr. Aung Tun Thet of the Institute of Economics is acknowledged. Finally, the warmth and collaboration of the people of Burma is gratefully recognised and the author hopes that her contribution to this project analysis assists in the realization of some of their hopes for a better life. The author accepts sole responsibility for any errors in interpretation. Furthermore the information reported herein is scanty and needs verification by future data collection efforts.

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Introduction. This report has been prepared as a part of the design effort for the Edible Oil Production and Distribution Project. The author served as part of a six member design team charged with undertaking and assessing the alternative approaches for assistance to the cooperative and private sectors in Burma for edible oil processing. The information reported here was gathered and processed between September 6, 1983 and October 19, 1983. This report is organized to meet the requirements for the social soundness analysis as specified in AID Handbook 3, Appendix 3F (9/30/82). As specified in the Handbook the social soundness analysis has three aspects which must be covered: the compatibility of the project with its sociocultural environment, the likelihood of a spread effect, and the distribution of benefits among different groups. This report will address these three aspects with specific attention to the likelihood of nutritional consequences of the project for beneficiaries or non-beneficiaries.

The Project Components. The proposed project is designed to introduce an improved technology package for extracting edible oil from peanut and sesame seed using solvent extraction methods which are more efficient at removing oil from seed than the existing technology of mechanical expelling. In addition, the project will introduce modern oil refining technology with a plastic bottling and quality control aspect. The improved technology will be introduced in a pilot extraction plant and refinery. The project also includes components for maximizing the existing expeller infrastructure, through technical assistance and training in hardfacing (a technique to reduce the rate of wear of moveable expeller parts), sanitation in mill operations and barrel handling and cleaning, and cooker jacket improvements (to improve the amount of oil extracted). Long and short term training in management, planning, forecasting, evaluation, pricing and marketing will be used to improve the institutional capacity of the Ministry of Cooperatives, the solvent plant management and staff and managers from cooperative and private sector mills. The solvent plant will be constructed and equipped by a U.S. manufacturer who will provide the necessary training and start-up program to begin operations.

PART I: Project Compatibility with Socio Cultural Environment

The Sociocultural Context. The project is a part of a program of bilateral U.S. economic aid to the Socialist Republic of the Union of Burma, a nation which has been practicing a neutralist and somewhat isolationist foreign policy until recently. The AID program resumed in Burma only in 1980 after a seventeen year hiatus. Burma is a nation with a long history of ethnic complexity. During the long period of British colonialism in Burma, some of its regions which were ethnically distinct were administered separately, removing some reasons for the historical conflict among groups. After independence, there was a time of cultural and political ferment when these conflicts intensified. The current unified state was a result of strong actions to maintain a single nation and to prevent secession of some of the areas with ethnic differences. Another source of ethnic conflict is the presence of a substantial minority of non-citizen nationals of Indian, Bengali and Chinese ancestry who are culturally different in dress and religion. The summary of the 1983 census identifies ethnic groups as follows:



Burmese 68.0%, Shan 8.9%, Karen 6.6%, Rakhine 4.4%, Others 12.1%. The Burmese majority predominates in the seven divisions of Central Burma, although Rangoon Division is a melting pot with representatives from all groups. The seven states are apparently more homogeneous, with greater representation from the ethnic group predominant in each state. Although the people of Burma are predominantly Buddhist, there are important minority religions. The 1983 census reports the following distribution: Buddhist 88.8%; Christians 4.6%; Islamic 3.9%; Anamists 2.2%; Hindus 0.4%; Other 0.1%.

The Burmese Economy. Burma is a largely agrarian society with 63.3% of its population devoted to agriculture, 20.6% to "production", presumably industry and manufacturing, and 16.1% to other pursuits, including administration and service. The economy of Burma has been shaped by a program of planned change under the rubric of socialism which has been accomplished by the development of a strong parallel market structure in scarce consumer goods and rationed foodstuffs. The plans developed by the Burmese government have long term goals of improving the well being of the population through strengthening the cooperative movement and the state sector of the economy. Historically, the private sector had been largely in the hands of foreigners, British colonials, Indians, Chinese, resulting in the perception that the private sector was exploitative and served no positive benefit to the nation. During the early years after the revolution, a policy of expropriation with nominal compensation was followed, which largely benefited the state sector.

The Role of Cooperatives. The cooperative movement, which began early in the twentieth century, grew very slowly and was treated by the state in an analogous fashion to the private sector in terms of taxes, duties and regulation. The expropriations with compensation conducted after the revolution apparently benefitted the cooperatives, at least in the edible oil processing sphere, since expropriated mills are now often owned by township societies or divisional cooperative syndicates. The state sector is not involved in peanut and sesame oil processing, marketing or distribution although it is involved in producing edible oil from rice bran (Food and Agriculture Trade Corporation) and the importation of palm oil.

Edible Oil in the Economy. Traditionally, the Burmese produced and consumed peanut and sesame oil on farms. During World War II, vegetable oil was in scarce supply, and lard was used as a less preferred substitute. Since 1957 Burma has produced rice bran oil in solvent extraction plants, which, despite initial consumer resistance to its colorless, odorless and tasteless quality, has been utilized largely by institutional distribution to hospitals and other state entities. In recent years Burma has imported refined palm oil from Malaysia which has been distributed, mostly at cost, through consumer cooperatives on a rationed basis. The palm oil price is consistently well below the price for peanut and sesame oils. Palm oil is also regarded as an inferior good by Burmese consumers due to its high melting point (viscosity) and poor taste. Otherwise, the price for edible oil is set by market conditions and most edible oil in Burma is distributed through private, free market channels. Consumers do not have much choice among types of oil at any given time. There is little quality control over oil. Adulteration or mixing of low preference with high preference oil is common, and, therefore, consumer confidence is low. Palm oil is sold at low price on a



rationed basis through cooperative stores. It is only available occasionally. Although it has low prestige, when offered it is immediately purchased. Edible oil produced by cooperative oil mills is distributed through cooperative stores. Usually, the local political entities insure that the producer areas have supplies before exporting the surplus (either through the cooperative system or private traders) to Rangoon. This control is exerted through check points on highways. Price is not used by cooperatives as a mechanism to capture more of the market.

Project Beneficiaries and Project Impact Areas. The edible oil production and distribution project will have some impact on Burma's population as a whole. But the major impact of the project is expected to be on the populations of the Magwe and Rangoon Divisions where the new processing plant will be located and the oil, distributed. In addition, it will directly affect the Ministry of Cooperatives and the Magwe Divisional Cooperative Syndicate through institutional strengthening and training activities. Therefore, to understand the project's anticipated impacts on beneficiaries it is important to review the sociocultural and demographic characteristics of Magwe and Rangoon Divisions.

Magwe Division: Socio economic and Demographic Characteristics. Magwe Division is located in Burma Proper in the upper Irrawaddy Valley, divided ecologically by the river in the east and west bank areas. It is said to be largely populated by the Burman ethnic group although since it borders the Arakan and Chin States at least the bordering townships share some common population characteristics and cultural features. (See Map 1). Magwe is primarily an agricultural zone with most of its arable land devoted to oilseed production. The climate in Magwe is notoriously variable with hot, dry, dusty summer season (March through June), a humid, hot rainy season (June through October) and a cool dry winter season (November through February). Health officials report a marked seasonality in the incidence of disease. The dusty conditions in the summer promote conjunctivitis, trachoma and other eye problems. An urban health center doctor reported that 70% of cases in that time period are for conjunctivitis. In the rainy season, health professionals report a lot of gastro-intestinal disease. In one urban health center, 125 to 175 cases per month were reported for the July to October period. The rainy season is also the time when respiratory diseases and acute undernutrition appears. This coincides with the time in the agricultural cycle immediately before the harvest of the major crops, September for sesame and October/November for peanuts. The weather is unpredictable and prone to abrupt shifts in temperature and rainfall which affects both health conditions and agricultural risks.

The population (1983 Census) of Magwe division is 85.78% rural and largely dispersed with no marked population concentrations. The population of the east bank portion of Magwe where over 60% of the Magwe oilseed are produced is 1.3 million (41%) out of a total of 3.2 million. (See Table 1). (Magwe's population represents 9% of Burma's total population.) The settlement pattern shows a slight concentration of population in townships which are contiguous to the Irrawaddy River with 2,059,729 people (64%). Communities are organized into nucleated villages surrounded by cultivated fields. Land title is vested in the state, although traditions of family inheritance are reportedly followed. (See Map 2.)



Map 1: Magwe Division

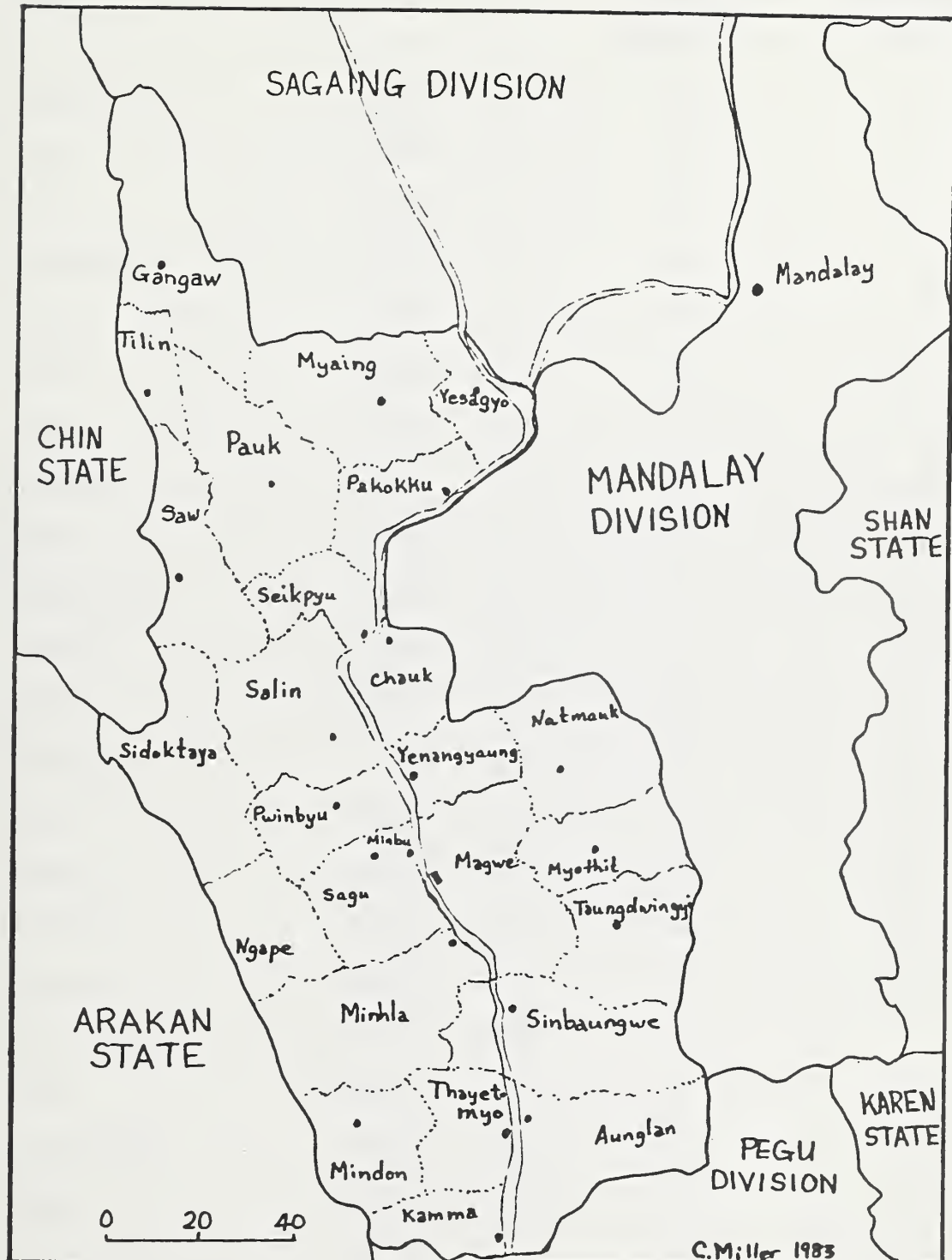


Table 1

Magwe Division Township Population

Township	Population	%	East (E) or West (W) Bank	Contiguous with Irrawaddy River
Gangaw	89,533	2.8	W	No
Tilin	47,823	1.5	W	No
Saw	55,730	1.7	W	No
Sidoktaya	35,264	1.1	W	No
Ngape	33,098	1.0	W	No
Mindon	53,889.	1.7	W	Np
Kamma	66,840	2.1	W	Yes
Thayetmyo	90,816	2.8	W	Yes
Minhla	90,532	2.8	W	Yes
Sagu/Minbu	131,296	4.1	W	Yes
Pwinbyu	132,045	4.1	W	Yes
Salin	191,125	5.9	W	Yes
Seikpyu	77,209	2.4	W	Yes
Pauk	127,817	4.0	W	No
Myaing	209,335	6.5	W	No
Pakokku	251,150	7.8	W	Yes
Yesagyo	211,282	6.6	W	Yes
Total West Bank	1,894,784	59.0		
Chauk	184,839	5.8	E	Yes
Yenangyaung	150,224	4.7	E	Yes
Magwe	224,273	7.0	E	Yes
Sinbaungwe	86,669	2.7	E	Yes
Aunglan	171,429	5.3	E	Yes

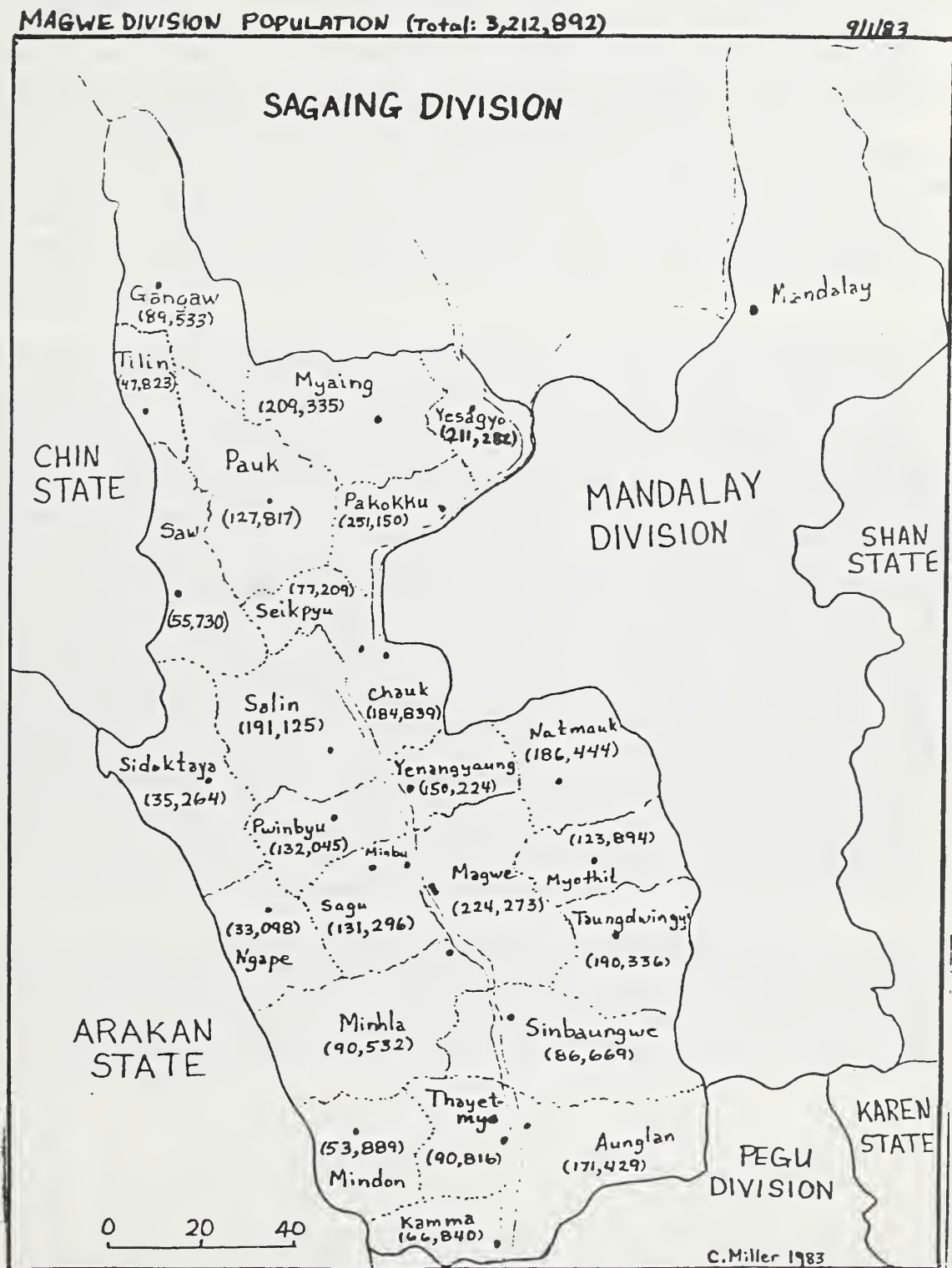


Township	Population	%	East (E) or West (W) Bank	Contiguous with Irrawaddy River
Natmauk	186,444	5.8	E	Yes
Myothit	123,894	3.9	E	No
Taungdwingyi	190,336	5.9	E	No
Total East Bank	1,318,108	41.0		
Total Magwe Division	3,212,892	100.0		

Source: Magwe Dept. of Immigration and Manpower - Sept. 1, 1983



Map 2: Magwe Division: Population

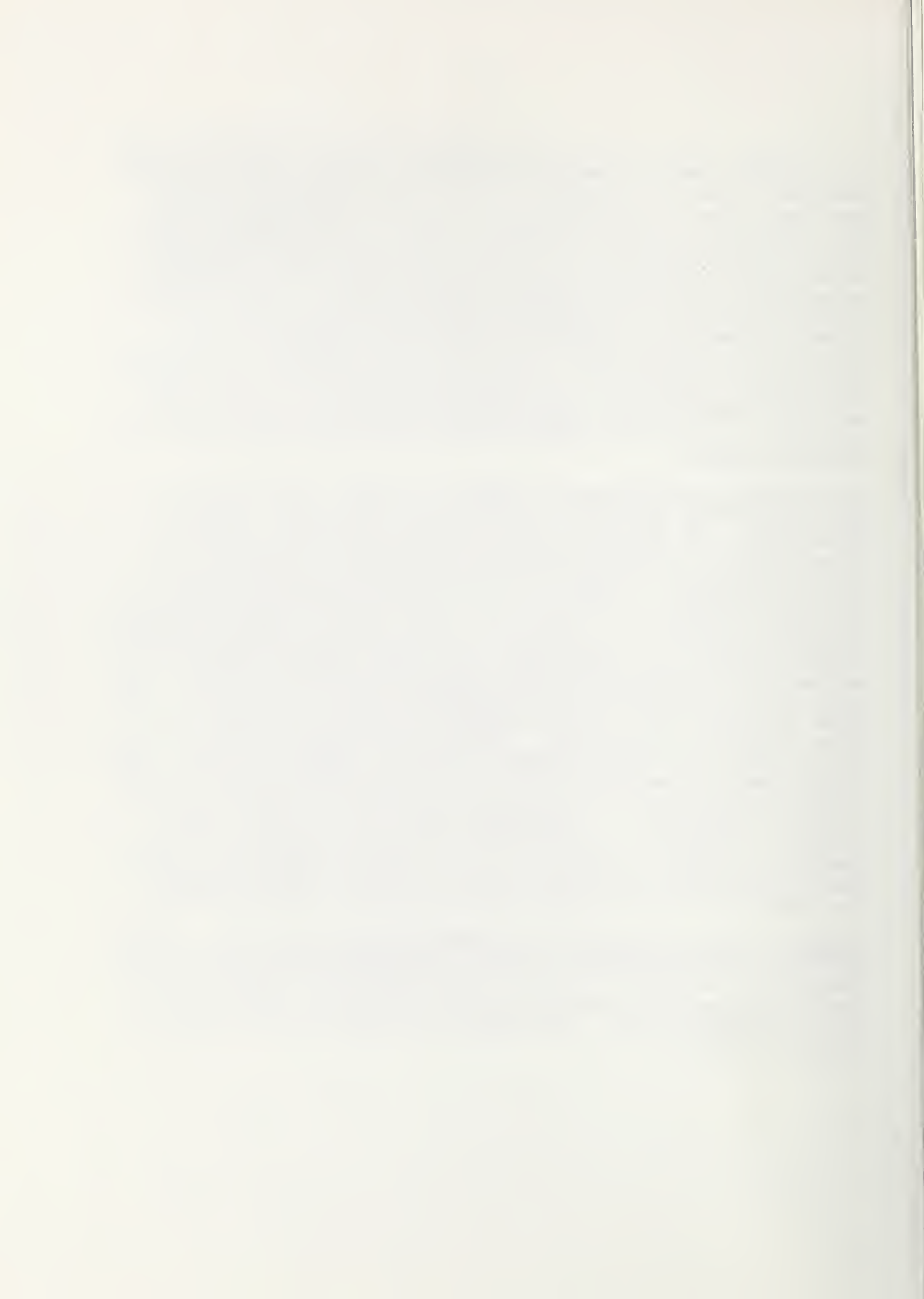




The Magwe division has no full-fledged agricultural producers cooperatives although there are some experimental ones. However, there are multi-functional cooperatives organized at the village level, called village tract cooperatives, which function to distribute consumer goods, scarce foods (especially rice) and agricultural inputs. These cooperatives also serve as a marketing channel for oilseed production. The village tract societies are organized into township societies which serve a processing and marketing function which require economies of scale. The divisional cooperative syndicate (a consortium of township societies) exist primarily to deal with the state enterprises and industries (as well as private suppliers) for the procurement of consumer goods. Apparently, the state industries found it managerially impossible to deal with the numerous township societies individually and the syndicate concept was created to meet that need. The divisional syndicate participates in the processing and distribution of edible oil, although most oilseed does not even enter the cooperative sector.

The Organization of Cooperatives in Magwe. All heads of households in Magwe (as in all of Burma) are eligible to belong to primary cooperative organizations. The management of village tract cooperatives, township societies and the divisional cooperative syndicate is conducted by their respective executive committees (E.C.) a mostly (2/3) elected, partially (1/3) appointed body of leaders selected from the ranks of the membership of Burma's ruling political party, the Burma Socialist Program Party (BSPP). The appointed members are not necessarily local residents nor knowledgeable in the activities of the cooperatives. The elected members, however, must be from among the cooperative's local membership. The nomination list from which executive committee members are elected is drawn up by the BSPP. In Magwe, a number of former military officers are serving in these E.C. positions which carry two-year terms. Observers report that the short tenure of E.C. members is a major management problem for cooperatives at all levels. Although permanent employee managers who are also sometimes former military officers exist, apparently they function as a reactive, operational staff, simply carrying out the E.C. management directives and keeping records of operations and actions. In Magwe, cooperatives own and operate oilseed expeller mills which apparently do not have sufficient capacity to possess even the proportion of production which is channeled through the cooperative sector. To fill this need, cooperatives contract with private mills.

Rangoon Division: Socio economic and Demographic Characteristics. Rangoon division, with 11% of Burma's population like Magwe division, is located in Burma Proper (see Map 3). The area labeled "Rangoon" on Map 3 constitutes the 27 townships of the Rangoon Metropolitan Area (RMA) sometimes called the City Corporation area. Unlike Magwe it is largely urban in character (68%) (See Table 2).



Map 3: Rangoon Division





Table 2

	Rural Population	Urban Population	% Urban
Magwe	2,747,941	493,162	15.22
Rangoon	1,280,270	2,693,512	67.78
Union	26,850,363	8,455,826	23.95

Source: 1983 Preliminary Census Results

Population figures by township for Rangoon division appear in Table 3.

Nutritional Problems in Rangoon. A major development problem identified for the population of Rangoon division has been the poor nutritional status of infants, children and women (both pregnant and lactating) in the so-called peri-urban areas. As with Burma in general, the population of Rangoon is predominantly young. (See Figure 1.) The existence of a network of consumer cooperative retail stores and minimarkets in the Rangoon division provides an outlet for the oil to be extracted, refined and bottled by project-financed facilities. Demand for oil is currently high in Rangoon division which is an oil deficit area, obtaining edible oil from Pegu, Magwe and Irrawaddy divisions.

Table 4 shows a very rough calculation of the possible nutritional impact of the expected oil output. It would be an exaggeration to assert that the output could directly benefit the most malnourished but the net increase oil availability in Rangoon division would certainly increase supplies in general and might have a slight effect on price, depending on the operational efficiency of the extraction plant and refinery. If the pilot aspect of the plant is successful and the oilseed production project produces dramatic increases in raw materials, economies of scale will allow the better, preferred oil to be produced at low cost and will create healthy competition for the adulterated oil and lower prestige imported palm oil, without lowering the purchase price for the oilseed from the farmers or having a significant impact of the private production of higher priced, preferred peanut and sesame oils.

Economic Activities in Rangoon. The economic activities in Rangoon suffered greatly during the Second World War. Most industry was destroyed. Although Rangoon still serves many administrative commercial, religious and industrial functions, the metropolitan area has not developed into a "primate" city dominating the rest of the country. It is very densely populated and its residents are not predominantly agricultural. A number of government policies have served to limit the attractive appeal of Rangoon, including the decentralization of university education and policies of rotating government employees from post to post. There is an active private commercial sector in Rangoon in consumer goods, fresh fruits and vegetables, dried foodstuffs, clothing, medicine and even imported luxury items, although some goods have probably been imported without official sanction. However, there is no overt attempt by authorities to intervene and remove parallel market goods from open trade. Edible oil is freely bought and sold in Rangoon through private wholesale and retail dealers. The cooperative sales have not had a large market share and exercise little influence on price.



Table 3

Rangoon Division: Population

I. Rangoon Metropolitan Area (RMA) (1973 Census)

	Township	Population	% Division	% RMA
1.	Insein	143,625	4.4	7.1
2.	Mingaladon	68,841	2.1	3.4
3.	N. Okkalapa	155,259	4.7	7.7
4.	Kamayut	67,309	2.0	3.3
5.	Hlaing	131,587	4.0	6.5
6.	Mayangon	108,749	3.3	5.4
7.	Thingankyun	141,209	4.3	7.0
8.	Yankin	68,818	2.1	3.4
9.	S. Okkalapa	149,409	4.5	7.4
10.	Kemmendine	64,145	1.9	3.2
11.	Sanchaung	66,593	2.0	3.3
12.	Ahlone	46,547	1.4	2.3
13.	Lanmadaw	42,691	1.3	2.1
14.	Latha	31,646	1.0	1.6
15.	Pabeidan	40,718	1.2	2.2
16.	Botataung	44,059	1.3	2.2
17.	Pazundaung	34,763	1.0	1.7
18.	Kyaukdaga	37,772	1.1	1.9
19.	Dagon	35,746	1.2	1.8
20.	Bahan	85,757	2.6	4.3
21.	Tamwe	106,682	3.2	5.3
22.	Mingalataungnyunt	96,287	2.9	4.8
23.	Thaketa	145,888	4.4	7.2



	Township	Population	% Division	% RMA
24.	Dawbon	37,439	1.1	1.9
25.	Seikkan	7,732	0.2	0.4
26.	Dalla	43,503	1.4	2.2
27.	Seikgyikanaungto	12,458	0.4	0.6
Total RMA: 2,015,232		% Division: 61%	RMA: 100%	

II. Peri Urban Area (PUA) (1973 Census)

	Township	Population	% Division	% PUA
28.	Taikkyi	152,781	4.6	11.9
29.	Hmawbi	110,779	3.3	8.6
30.	Hlegu	152,070	4.6	11.8
31.	Htandabin	88,881	2.7	6.9
32.	Khayan	118,950	3.6	9.2
33.	Twante	167,263	5.1	13.0
34.	Syriam	103,490	3.1	8.1
35.	Thongwa	118,116	3.6	9.2
36.	Gawmu	84,973	2.6	6.6
37.	Khunchangon	81,238	2.5	6.3
38.	Kyauktan	105,963	3.2	8.2
39.	Cocokyun	1,981	.1	0.2
Total PUA: 1,286,485		% Division: 39%	39%	

I & II

Total Division: 3,301,717 1973	Growth Rate 2.2%	Total Projected 1983	4,104,391
		Total Actual 1983	3,973,782
		Error: High	130,609 (3.2%)



Figure 1: Rangoon Division Population Pyramid

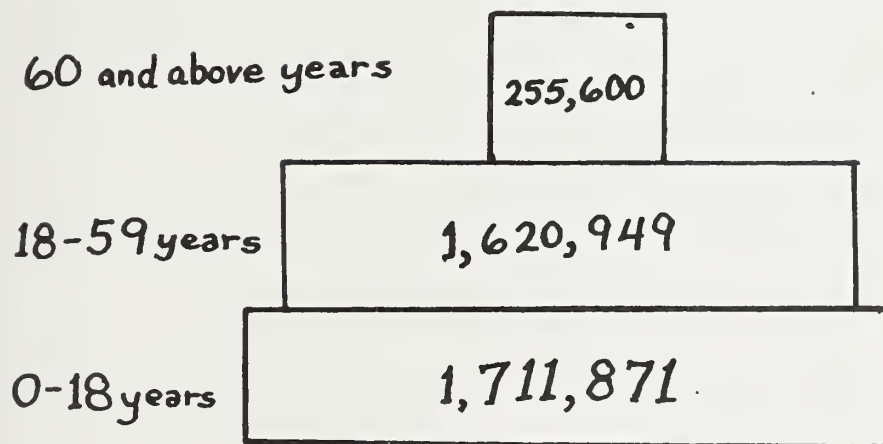




Table 4
NUTRITIONAL IMPACT ANALYSIS

al Estimated reased Produc- on per Annum m New Solvent 1 (MT of oil)	Estimated Caloric Value of New Oil (000,000) (Kilocalories)	Weighted Mean Per Capita Daily Energy Requirement (Kilocalories)	Person Days of Energy Supplied by New Oil (000,000)	Annual Number of Adult Females with Caloric Deficit who could meet Energy Requirement with New Oil Source
300	2,700	2,114	1.277199	39,558



Role of Cooperatives in Rangoon. In Rangoon division, cooperatives play a lesser role in agricultural production and processing than in Magwe, since the population is largely urban. There are, however, credit/savings coops for manufactured goods including handicrafts, cooperatives for technical and professional services such as engineering and architecture, funeral services cooperatives, consumer cooperative shops, minimarkets and township societies. There are over 1000 consumer cooperative shops in Rangoon division and over 50 minimarkets. The minimarkets are special retail outlets offering a more diverse range of goods which cooperatives may set up if they meet certain criteria for financial viability and managerial experience. The Ministry of Cooperatives has promoted the establishment of minimarkets in order to increase volume of sales in cooperative sector by reaching beyond the neighborhood boundaries of the consumer cooperative shops where sales are restricted to members. The minimarkets carry cosmetics, some import items and even fresh meats. Anyone can purchase goods there, although rationed goods still are distributed by allotment or lottery to members only. Initial sales of minimarkets seem to have been bolstered by special access to scarce and sought-after goods. However, they have been located next to existing private sector markets which offer stiff competition and greater variety. They are also apparently hampered by unimaginative E.C. members and managers who are afraid to expand the number and variety of types of merchandise offered for sale. One observer reported that E.C. members and managers found expansion to be a lot of extra unrewarded work, implying a lack of incentives to expand operations. It was also reported that procurement from private sector suppliers, although permitted, is looked upon with trepidation by E.C. members and managers who worry about their reputation for ideological purity.

Socio-Cultural Compatibility. The approach of improving the quantity and quality of edible oil by improving processing technology and Burmese managerial, planning and analysis skills is, in general, compatible with Burmese culture and social patterns although change is necessary to achieve the improvements anticipated. The project design implies changes in edible oil retail purchase pattern. Recommendations on size of container and the amount of bleaching and deodorization have been made based on an analysis using data from rapid appraisal survey of consumer preferences and quantities purchased, taking into account issues of cost effectiveness. The plant operation and distribution of products requires some management skills and procedures for sharing of information which are not now commonly found. The project design anticipates changes in marketing and distribution which will add cost to the product. The oil processing facilities in Magwe will require new standards of dress and behavior to insure safe operations. Finally, the higher paid, skilled employment generated will probably accrue to males rather than females. The project team considered these areas of socio-cultural change due to project-financed activities and included features in the project design which remedy these constraints.

Taste Preference and Containerization. The AID-financed pre-feasibility study conducted in January and February 1983 anticipated problems with the potential acceptability of refined oil and the need to study purchase quantities for deciding on an optimal container size and material. Therefore, the project paper team was given the mandate of studying the diet and the role of oil in it, the degree market dependency for food, quantity, price and preference issues in oil purchases, and degree of choice exercised by the consumer. The following paragraphs summarize the results of that investigation.



Dietary Patterns and the Role of Oil. As mentioned previously, the Burmese diet ideally contains relatively large amounts of oil. The Department of Medical Research provided some advance preliminary food consumption data on Rangoon and Irrawaddy Divisions which indicates that fat (mostly edible oil) accounts for over 15% of dietary energy in diet of active adult males in the small sample.

Table 5
Dietary Intake Analysis for Delta Region
Males aged 20 - 24 years

Division	Location	(RDA) : Recommended: : Dietary : Allowance : Calories	Actual : Mean : Daily : Caloric : Intake	Mean : Daily : Fat : Intake : (Calories)	% : of : RDA : from : Fat	% : Mean : Caloric : Intake : from : Fat	% of : RDA : met
Rangoon	Sanchaung (urban)	2800	2568	480	17%	19%	92%
Irrawaddy	Kyonpyaw (urban)	2800	2842	355	13%	12%	102%
Irrawaddy	Kyonpyaw (rural)	2800	2989	450	16%	15%	107%

Source: Preliminary Data
Department of Medical Research

These data show that adult males, in general, are not undernourished. Fat intake for adult males is near recommended amounts. Data for non-pregnant, non-lactating (NPNL) women and three year old girls indicate more of a caloric gap between requirements and intake with a high proportion of calories from fat.



Table 6

Dietary Intake Analysis for Delta Region Females

	Division	Location	RDA Calories	Mean Intake Calories	% of RDA met	Mean Fat Intake Calories	% of Mean Intake from Fat	% of RDA from Fat
Adult NPNL	Rangoon	Sanchaung (Urban)	2400	1904	79%	441	23%	18%
3 yr old			1300	1021	79%	234	23%	18%
Adult NPNL	Irrawaddy	Kyonpyaw (Urban)	2400	2324	97%	378	16%	16%
3 yr old			1300	1253	96%	261	21%	20%
Adult NPNL	Irrawaddy	Kyonpyaw (Rural)	2400	2412	101%	387	16%	16%
3 yr old			1300	1258	97%	297	24%	23%

Source: Department of Medical Research

However, these data are reported to have wide variation within the small samples used and therefore cannot be relied upon for representativeness.

Ethnographic data collected in interviews with Rangoon residents describe the role of oil in Burmese dietary patterns. The two oils of choice are sesame and peanut. Oil users reported complementarity rather than substitution between the two types except when forced to use one or the other by availability. Some stated a clear preference for peanut over sesame oil due to taste and utility for frying. One person said that peanut oil is good for deep frying, while sesame oil tends to boil over. She said she preferred to cook with sesame oil because she makes lots of "curries" and sesame oil is good for curries. Others report sesame oil use in salads. Almost all persons interviewed agreed that sesame oil was not as good for frying, as peanut oil.

An ideal Burmese meal has a minimum of four dishes: soup, steamed rice and two "curries." A curry is any stew or dish prepared to go with rice having vegetable, meat or fish as basic ingredient combined with condiments prepared by boiling, frying or sauteeing. It is not necessarily a hot, spicy dish nor does it necessarily have curry powder or chili in it, although it frequently does.



A favorite category of curry is known as "hsi byan", one in which oil is visibly present or floating in oil. Respondants reported that the best meals always have "hsi byan" curries. The usual forms in which oil is consumed are curries and fried foods, such as fried bean balls (bayargyaw), vegetables such as squash, dehydrated fish crisps, bananas and other foods. Often these fried foods are served with curries as a side dish. One of the desirable qualities in a curry is the tastiness of the gravy with high oil content viewed as desirable. Small amounts of Burmese sauces and salads (raw, pickled or cooked) are served with main dishes. Soup is linguistically categorized as a sweet or sour curry, but is used as a beverage to be consumed along with the rice and curries. Burmese usually serve no other beverage with the meal, but often follow the meal with water or tea.

Market Dependency for Food and Oil. Both Rangoon and Magwe divisions exhibit certain degree of market dependency for foods although Rangoon, as a major metropolitan area, is quite dependent for most food supplies from imports to the division. In Magwe, a primarily agricultural region, there appears to be a kind of sub-regional specialization in agricultural production resulting in intertownship food trade. Magwe division is a net importer of rice, according to conversations with local authorities. Only certain township are self sufficient in rice and others depend on shipments from Rangoon. Magwe also imports fruits and vegetables from outside the division, especially from Mandalay. A small survey of eleven leading farmers conducted in Magwe by one of the team members showed no reported home consumption of oilseed crops. Oilseed appears to be, at least for the leading farmers, a commercial crop for which transactions are conducted in cash. These farmers as well as non-farming villagers and town dwellers purchase edible oil from private shops, cooperatives or directly from mills or traditional oil expelling technology called "hsi zone" literally "oil mortar".

We have no data, however, which sheds light on the relative frequency and degree of dependence among Magwe's population for farm-produced oil. Consumers indicated a marked preference and willingness to pay higher price for hsi zone oil over mechanical expeller oil, citing freshness, taste, aroma and color as qualities which were better.

Hsi zone oil processing, however, is wasteful of raw materials in the sense that the process only removes half the oil from the cake which is fed to the draught animal. Such high oil content in animal feed is not necessary, and indeed, the animal would probably profit from a lower fat, high protein feed such as that produced from the solvent extraction process.

Rapid Appraisal Survey on Preferences and Quantity Purchase Patterns. In order to make recommendation to the engineering team on the likely impact of consumer preferences on oil purchases, including information on purchase quantities, a rapid appraisal survey was conducted on an opportunity sample of Rangoon and Magwe oil sellers and purchasers using the snowball technique. This survey was conducted by multiple interviewers and is expected to contain bias in the direction of greater affluence. A copy of the two survey instruments appear in the appendix of this report.



In response to the question "what is the usual amount of oil you sell (or buy) at any one time?" the information in Table 9 was obtained

Table 9. Usual Oil Purchases

	Range		Mean	Mode	Median	Number
	High	Low				
Rangoon Shop Keepers	1.5	0.1	.48	.5	.45	12
Rangoon Consumer	7.5	.05	1.64	1.0	1.0	24
Magwe Consumer & Shop Keepers	1.0	.025	.19	.15 .10 .025	.1	11
TOTAL	7.5	.025	1.02	1.0	.5	47

In reviewing these data, it is apparent that even at current high price there is a wide range of purchase quantity, a factor promoted by the sale of edible oil by volume from open drums, jars or ceramic containers. Furthermore, large usual purchase is correlated anecdotally with salaried consumers who are paid monthly and small usual purchase with day laborers. In discussions of these data with the Ministry of Cooperative it was decided that the access of low quantity purchasers would be kept open by allowing the recommended one viss bottles to be opened with sales of small quantities allowed. However, since consumers will be bearing the costs of investment and unproductive capital especially in the initial years of plant operation, the analysis indicates that little concern should be raised about the socio-economic status of the oil consumers. In later years of plant operations when production of oilseed is expected to be dramatically higher, the economic analysis indicates that the retail price may be possibly lowered and the needs of smaller quantity consumers can be met. The measures of central tendency computed from the data support the one-viss size for usual and large purchases. Since quality oil is a sought-after good, it is anticipated that consumers will demonstrate a high propensity to consume refined oil despite the fact that the cooperative oil price will be higher than cooperative prices formerly were, since private sector prices are high.



(1) Quantity of Purchase. In response to the question "What is the largest amount (in viss units) of oil you sell (or buy) at any one time ? The information in Table 7 was obtained.

Table 7 Largest Oil Purchase

	Range		Mean	Mode	Median	Number
	High	Low				
Rangoon Shop Consumer	10	.15	4.85	5.0	5.00	12
Rangoon Consumer	10	.5	2.90	1.0	2.00	24
Magwe Consumer & Shop Keepers	5	.05	1.22	1.50 0.50 0.10	.50	11
TOTAL	10	.05	2.99	5.00 3.00 1.00	2.00	47

Note: 1 viss equals 3.6 pounds

In response to the question "what is the smallest amount (in viss units) of oil you sell (or buy) at any one time?" the information in Table 8 was obtained.

Table 8. Smallest Oil Purchases

	Range		Mean	Mode	Median	Number
	High	Low				
Rangoon Shop Keepers	.5	0.125	.09	.05	.05	12
Rangoon Consumers	2.5	0.05	.25	0.1	0.1	24
Magwe Consumer & Shop Keepers	.1	.025	.04	0.025	0.025	11
TOTAL	2.5	.0125	.16	.05	.05	47



(2) Desirable Oil Qualities. The survey also collected information on the respondents' attitudes about what good qualities characterized preferred oil. Table 10 summarizes those finding.

Table 10: Qualities of Preferred Oil
(N = 47)

	Numbers of times mentioned (Each respondent could mention more than one.)	Percentage
Cooking/Frying Qualities	31	29
Desirable Flavor	30	28
Good Aroma	23	21
Clear, light color	13	12
Accustomed to it	4	4
Low Price	3	3
Good for health (Sesame)	3	3
	<hr/>	<hr/>
TOTAL	107	100

These data support the idea that consumers are articulate about specific desirable qualities of edible oil and a substantial percentage are attracted to oil which has qualities added by refining (cooking/frying 31% plus color (13%) plus some proportion of flavor and aroma which is a reaction to undesirables like bitterness and acidity, probably around half, 24% for a total of 68% of times mentioned.) Price on the other hand, was only mentioned 3% of times.

(3) Undesirable Oil Qualities. Table 11 presents data on complaints consumers have about oil currently purchased in the market.



Table 11: Qualities complained about in Unrefined Oil
(N = 47)

	Number of Times mentioned (Each respondent could mention more than one.)	Percentage
Bad Flavor	29	34
Contamination and adulteration	19	22
Bad appearance (color)	17	20
Bad Smell	15	17
Tasteless/scentless	2	2
Marketing Problems	2	2
High Price	2	2
Poor cooking qualities	1	1
TOTAL	87	100

These data also support the idea that consumers are concerned about qualities in edible oil which are induced by slow marketing of contaminated oil which is poorly handled and over exposed to air. 93% of the qualities consumers complained about can be directly attributable to lack of refining to remove undesirable free fatty acids, gums and phosphatides which contribute to a rapid rate of spoilage.

Therefore, it appears that although refining and bottling will somewhat increase the retail price of edible oil, consumers nevertheless value the qualities added by refining. Given the apparently high and relatively inelastic demand for edible oil in Burma, it is not anticipated that consumer resistance to the new product nor its container will be found to have any significant negative effect on its consumption. One caveat should be noted here. When rice bran oil was initially introduced in Burma extreme consumer resistance was reported. One government official said "We had to give it away until they got used to it." However the colorless tasteless quality of rice bran oil is quite extreme compared to the nature of refined peanut and sesame oils which will be refined to retain much of their flavor, color and aroma, despite refining.



Administrative and Managerial Attitudes. A second area which bears on the socio-cultural compatibility of project financial activities is that of administrative and managerial attitudes, beliefs and patterns currently held or practiced in Burma particularly those which relate to cooperative organization, education, training and the role of government.

As in many developing countries, positions of authority are jealously guarded. There is little delegation beyond the most ordinary and mundane tasks. Therefore, organizations are structured in ways which glorify the leader, with lower level employees reporting directly to the top, bypassing supposedly intermediate positions. This organizational problem required some active efforts within the project to anticipate and alter these patterns which are found both in the Ministry of Cooperatives and in the cooperative organizations. Management training and organizations development intervention is an essential input for the Magwe Divisional Cooperative Syndicate (MDCS) and the Ministry of Cooperatives Cottage Industries Department and the Educational and Planning. Divisions of the Cooperative Department. The management of an expensive and complex plant, which has a requirement for continuous operations and staff team work will require the development of feedback mechanisms from bottom up as well as rules from top down. The delivery of technical assistance and training to the diverse target groups envisioned in the Institutional strengthening planning, management, and adaptive technology transfer components will require skill building and management training approaches to insure that some positive effect is accomplished.

Marketing Channels, Transportation, Communications and Information. The success of the project's strategy is dependent on design features which take into account existing behavior and patterns relating to marketing, transportation communications and information. There are constraints to be dealt with in all of these areas.

Marketing. The cooperative system has a rather cumbersome marketing structure, dependant on quarterly offerings of goods which are in short supply and are more often "allotted" than "ordered". The contracts and transfers of edible oil should be taken into account when assessing the likelihood of whether the distribution of oil will take place as planned. Secondly, the cooperative stores have had a precedent of distributing oil by a ration or lottery system in extremely small amounts (e.g. 0.15 viss). The distributing in one-viss bottles may cause problems. (It is not anticipated that the containers themselves will be a problem since they will probably be reused and serve good purpose). They should be calibrated with measuring marks to promote multi-purpose reuse. Procedures should be established governing the rationing issue to avoid complaints about unfair distribution which would undermine the cooperative purpose of the system.

Transport. The use of wood crates to transport and store the bottled oil is not only technically sound but appropriate to cultural conditions. Wood crates are currently used for transporting bottled soft drinks. Wood is



available, and the manufacture of crates would generate some additional employment. The transportation of oil in crates, as explained in the technical analysis would result in an improvement in the current practices which result in oil loss, investment loss (through damaged drums) and poor working conditions. The handling of cases of bottled oil would be much simpler and require less human stress and economic loss. Although change is entailed, the social impact should be positive both in terms of the working conditions of laborers and the economic losses due to oil spoilage and leakage and drum damage. The MDCS has an existing fleet of trucks which are appropriate to the anticipated transportation of bottled oil.

Communications. The major impact of communications links on the proposed project will be in plant operations, training and technical assistance.

Most of the target group for training will be unable to speak or understand English and most of the potential pool of technical assistance experts, advisors and trainers will be unable to speak Burmese. The most cost effective way to treat this will be to train the technical assistance experts and advisors in a minimal level of Burmese and to pair them with a bilingual counterpart. This will avoid the problem of the expert being totally dependent on the interpreter and will encourage trust and confidence between the recipients of the technical assistance and training.

Information. The socio-cultural compatibility of project-funded activities with respect to information content and exchange is another related issue. The transfer of improved technology can only have the desired positive impact if the necessary information is shared and understood by the necessary personnel in the system on a level adequate to the safe and efficient functioning of the new equipment. The new type of oilseed meal to be produced will only have high value if the caretaker of animals have sufficient information about its beneficial effects and are willing to try it. The design of the project has taken into account these factors and no major impediment to the success of the project is anticipated due to them. The construction and initial supervision of the plant follows procedures used in other developing countries where such facilities have been installed. According to the project design team technical analysts, the current state of the art in the design of solvent extraction plants, refineries and bottling operations does not require a great deal of information or education on the part of the rank-in-file staff. The analysts do recommend management training and observation of similar plant operations for the plant manager largely for reasons dealt with above. The social analysis strongly supports this recommendation and suggests that the equipment manufacturer be urged to nominate technical assistance supervisory personnel who are culturally sensitive and who have been exposed to some in depth briefings on Burmese society, culture, and working conditions. (AID should facilitate this briefing process.)



The demand for the new type of oilseed meal by the new dairy operation at Mandalay will set precedent which will serve to illustrate the good qualities of the feed and to diffuse the information or its vitality without a special information campaign. Therefore, although important, the information content and exchange necessary to project success will be undertaken and no socio-cultural problem is expected to impede this process.

Gender Roles. Much has been said about the relative equality of the sexes and high status of women in Burma. Steinberg has reported that women are present in significant numbers in the BSPP. The belief in male authority in the family and in the society in general is traditional, but women are said to have considerable freedom of action to seek employment, to marry, to get divorced, to influence family finances and to carry on commercial activities. This generalization was borne out by the limited observations of Burmese domestic life and gender interactions during the period that this analysis was conducted. For instance, it was observed that wives were free to practice a religion different from their husbands. Also, many observers commented that there is a high proportion (although unmeasured) of fully employed adult women in Rangoon. In the MOC for example, there were several women assigned to work as counterparts with the design team including an office chief and two professionals from the Department of Cottage Industries. Indeed, the observations and information collected indicate that the project will not have any negative impact on women, although the benefits of the small amount of employment generated by the solvent extraction plant is expected to accrue to men.

Safety in the Magwe Facilities. The major investment under project-funded activities will be a model, pilot solvent extraction plant and other facilities especially designed to demonstrate an energy-efficient, safe and economically viable edible oil extraction process. However, some reservations have been expressed about the likelihood of safe operations given the lack of experience with solvent extraction processing, the management constraints of the implementing organizations and the uncertainty of continuous operations due to power failures and other problems. This section of the social soundness analysis demonstrated the socio-cultural compatibility of the plant operation with respect to safety considerations.

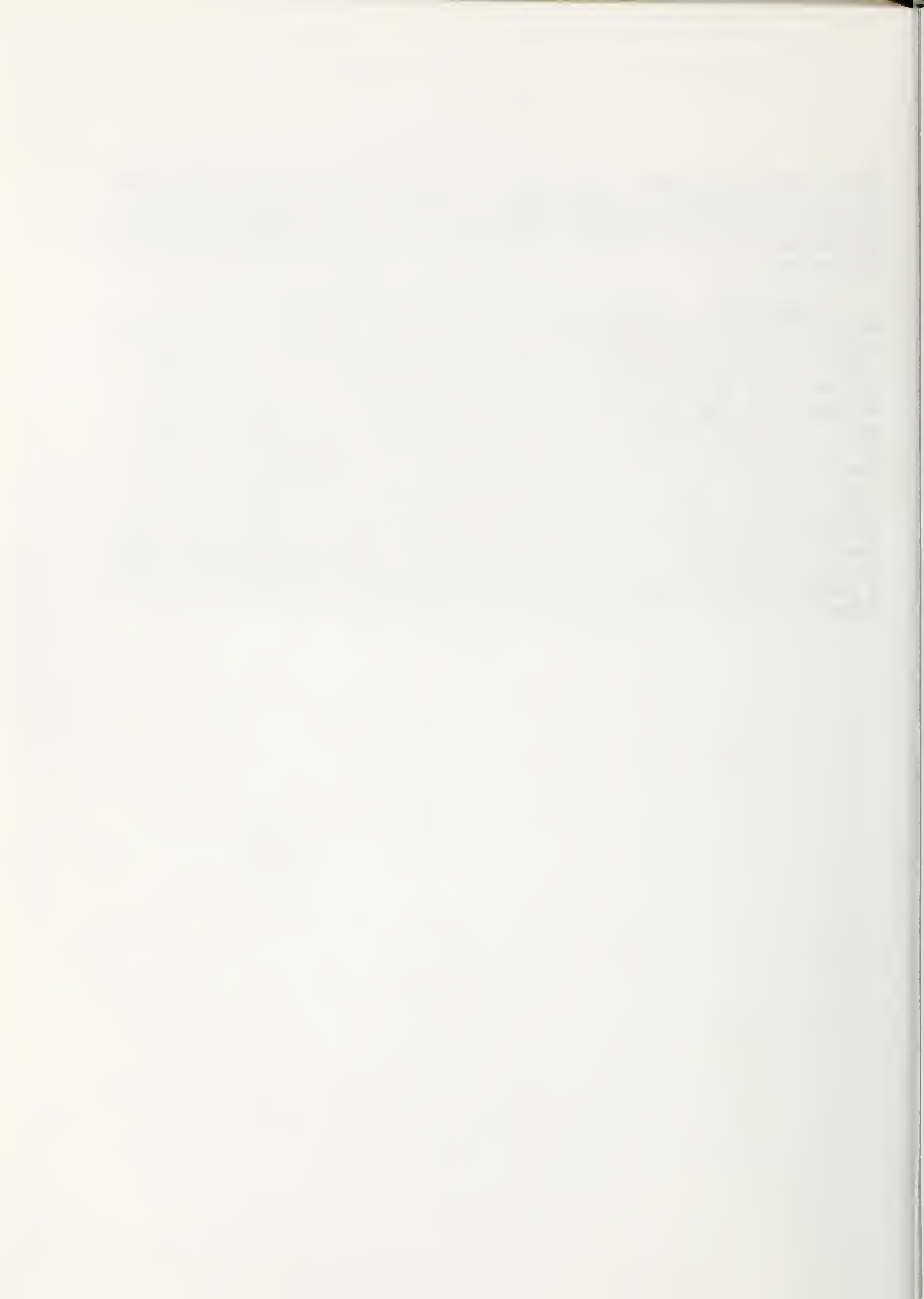
Historical Safety Problems. One source of reservations about safety has been anxiety introduced in Burma by the cases of a number of rice bran edible oil solvent extraction plants which have suffered explosions and fires. After visiting one of these plants, the engineering team members pointed out that the technology used in them was obsolete (built in 1957) in terms of safety and that the management of the plant was not set up to minimize risks.

Continuous Versus Batch Solvent Extraction. The batch process was adopted in the rice bran mills. This technology, plus the delivery of solvent in barrels, caused a lot of hexane gas to be released into the air, while the project-funded facility will have a "continuous" operation with a material seal as the oilseed and cake enters the extractor and a material seal on the other



end at the desolventizer. Also, the new plant will utilize hexane delivered by tank truck to buried storage tanks. Therefore, the hexane is kept in a closed system with a three-foot earthen wall around it as a vapor barrier and fences around the extractor and the entire compound to keep unauthorized people out.

Safety Rules. Personnel will receive training in safe behavior and safety rules will be strictly enforced on smoking, fires (including charcoal) and prohibition of automobiles in certain locations. The use of the traditional sarong clothing and flip flop shoes will have to be replaced with a uniform since feet should be covered, although no metal should be used in footwear, and clothing should not be loose as it may get caught in moving parts. The staff should be well enough educated to receive and understand written messages. The plant is designed to safely withstand with normal power outages of from one to two hours. Magwe, unlike Rangoon, has a more regular and continuous supply of electrical energy from natural gas powered supply sources so this factor is not expected to be great. Indeed, the engineering team said that this type of solvent extraction plant completely installed with special electrical features and hexane gas detectors to signal even very low amounts of hexane in the air, would be a safer environment than a gasoline filling station. Therefore, if these recommendations are implemented this issue will not impede project viability.



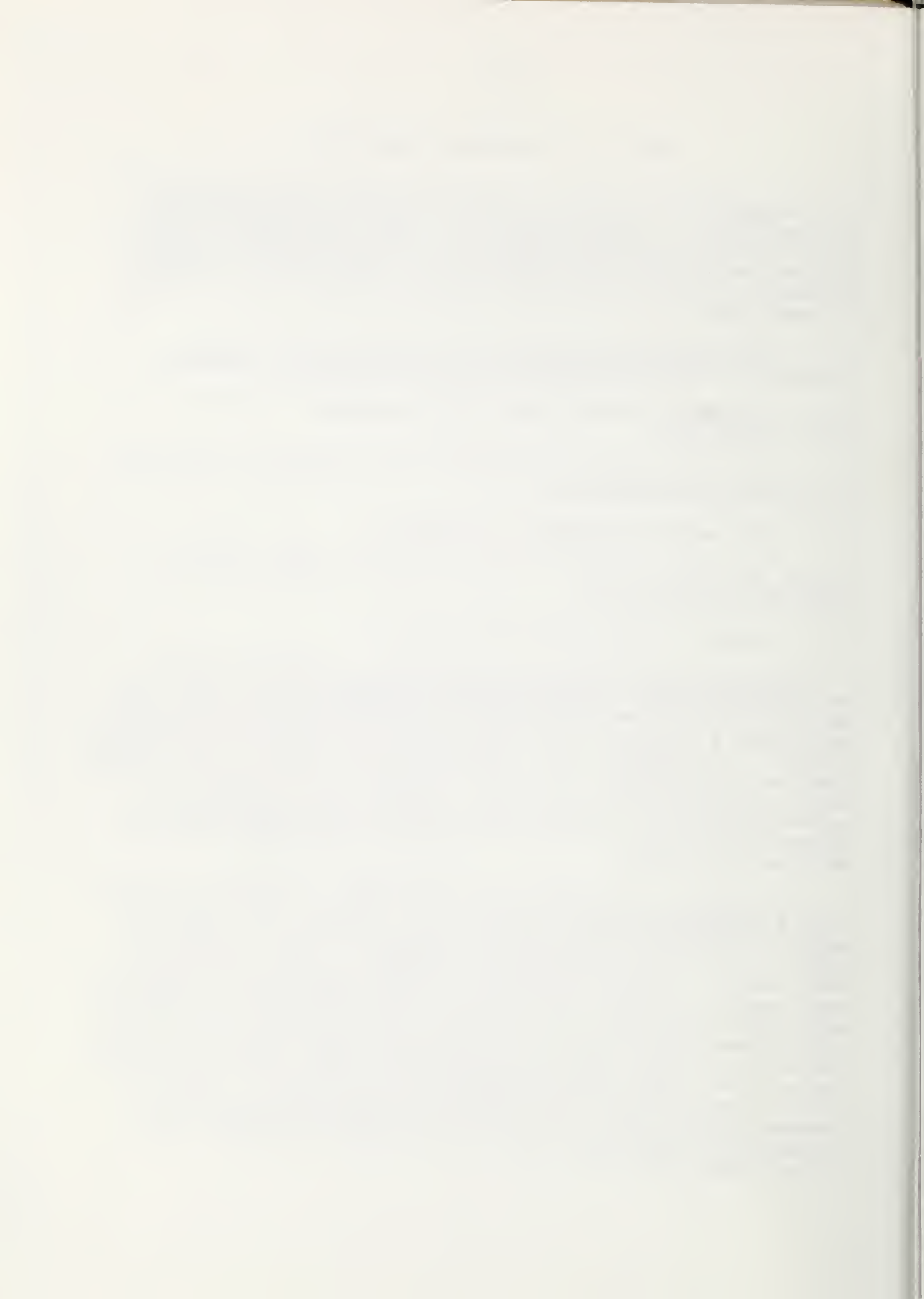
PART II: Likelihood of Spread Effect

The purpose of assessing the diffusion effects of the introduction of innovations in the social analysis is to demonstrate that the use of project resources have been designed into a whole project with a strategy which delivers benefits well beyond the direct beneficiaries of project assistance. This part of the social soundness analysis reviews six areas of spread effect:

1. the demonstration and testing of improved oilseed solvent extraction, refining and bottling technology under Burmese conditions;
2. the diffusion of practical simple improvements to current expeller operations;
3. the possible impacts of improved planning and analysis capability in the Ministry of Cooperatives;
4. the results of management improvements;
5. the effect of creating a better domestic oilseed processing capability in the long run;
6. support for other development efforts.

Demonstration and Testing of New Technology. Through the project, the Burmese will have a unique opportunity to demonstrate and test a safe, energy-efficient and economically viable oilseed processing facility which will produce a better quality oil in a desirable and culturally appropriate container. The advantage of the demonstration and testing is that modifications can be instituted in the pilot facility which will make the technology even more adapted to local conditions. The age and inefficiency of the current equipment in all sectors show a need for more new equipment. A successful demonstration will encourage adoption beyond Magwe and outside the cooperative sector.

The Diffusion of Practical Simple Improvements. The project also contains a component which has been designed for maximum spread effect, the adaptive technology transfer component. The likelihood of increasing the project's direct impact beyond Magwe and Rangoon divisions is enhanced by this component. The past experience of Burmese in metal casting, spare parts repair and copying and rebuilding of equipment, given the bureaucratic and financial impediments to importation, show the tremendous existing capacity in Burma to take anything that works, copy it and keep it functioning. The extreme isolation from outside technological influences has created a strong interest among machinery maintenance personnel in oil expeller mills in ideas from the outside. For example, suggestions made to Industrial Producers Societies concerning hardfacing techniques in January by the prefeasibility study team had been tried out before the September visit by the project paper team.



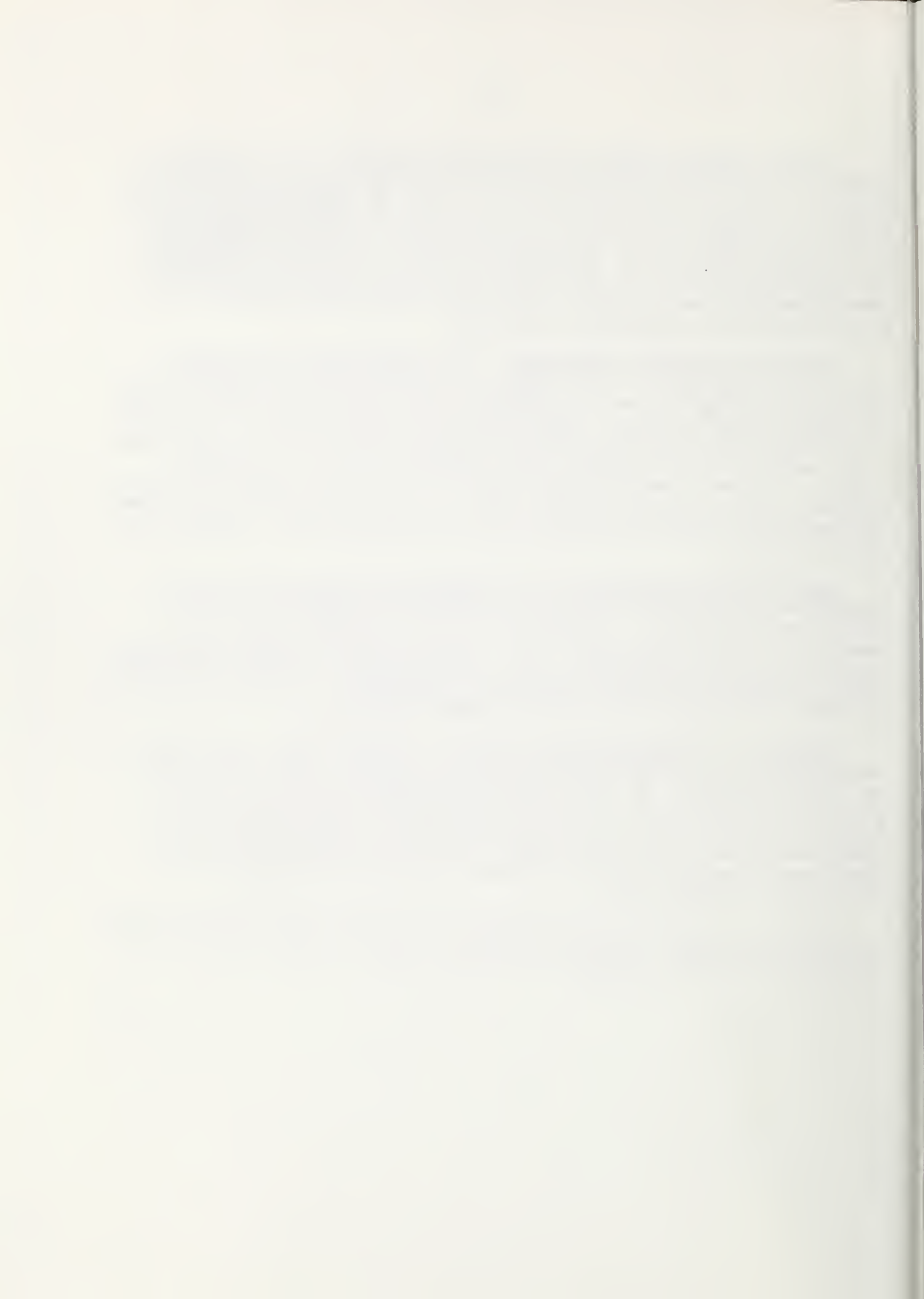
Possible Impacts of Improved Planning and Analysis. The strengthening effort in the MOC for improved planning and analysis capability has the potential of having a much broader impact beyond the initial area of oilseed production, processing and price analysis. These skills will enhance the ability of the MOC to apply analytical techniques to general marketing and price structure problems in the cooperative sector, helping to rationalize the economic operations of cooperative shops and minimarkets and assisting township societies and divisional syndicates to serve their members in a more productive and economically viable way.

Results of Managerial Improvement. The spread effect of management training for cooperatives at all levels, for expeller mill personnel and for the MOC will be better flow of information and assistance up and down through the organizational structure, improving and ideally maximizing the resources invested with project financing and setting an example for other organizations in all sectors as to the positive results which accrue when a team works together. The best hope for spread effect is that a critical mass of rational management practitioners can help to clarify problems constraining development in Burma and bring improved critical thinking and team work to generate alternative solutions.

Results of Building Domestic Oil Processing Capability. Burma has a comparative advantage for agricultural production in general and oilseed production in particular. If the proper mix of technology transfer and human resource development takes place, building a long term oil processing capability to handle production levels, it is possible that Burma's long term stability would be enhanced, especially if incentives to produce are increased and retail oil prices exhibit only reasonable increases.

Support for Other Development Efforts. This project has a direct and immediate potential spread effect to support livestock, dairy and the need for foreign exchange. The high quality meal produced is being discussed as a source of feed for local Magwe livestock, improved dairy herds in the Mandalay division's project supporting a planned milk processing facility (under Australian economic assistance) and increased revenue from oilseed cake currently being exported to European customers who dislike the high oil content of expeller cake.

In sum, the project has high potential for multiplying its effect through all of its components. These spread effects support the determination that the project is socially sound.



PART III: Distribution of Benefits
among Different Groups

The project itself and its spread to a wider population will affect different groups in different ways. The purpose of this section is to describe the distribution of those affects to direct and indirect beneficiaries and consider modification to assist any non-beneficiaries who are expected to be adversely affected by project-financed activities. This part will describe direct, indirect and non-beneficiaries of this project and will assess the degree of potential adverse impacts.

Direct Beneficiaries. The direct beneficiaries of this project will be: (1) the Government of Burma; (2) the Magwe Divisional Cooperative Syndicate (MDCS); (3) the Ministry of Cooperatives; (4) Township Cooperative societies and industrial producers societies; (5) other existing oil-mills and (6) U.S. manufacturers of equipment.

The Government of Burma will benefit by the grant of U.S. \$8.2 million worth of commodities and technical assistance which in turn will be loaned by the Myanma Investment Bank to the MDCS generating eventual payment of principal and interest to the bank covering the grant amount and import duties (U.S. \$2.7 million). The Government will also benefit from any additional income tax generated by the investment.

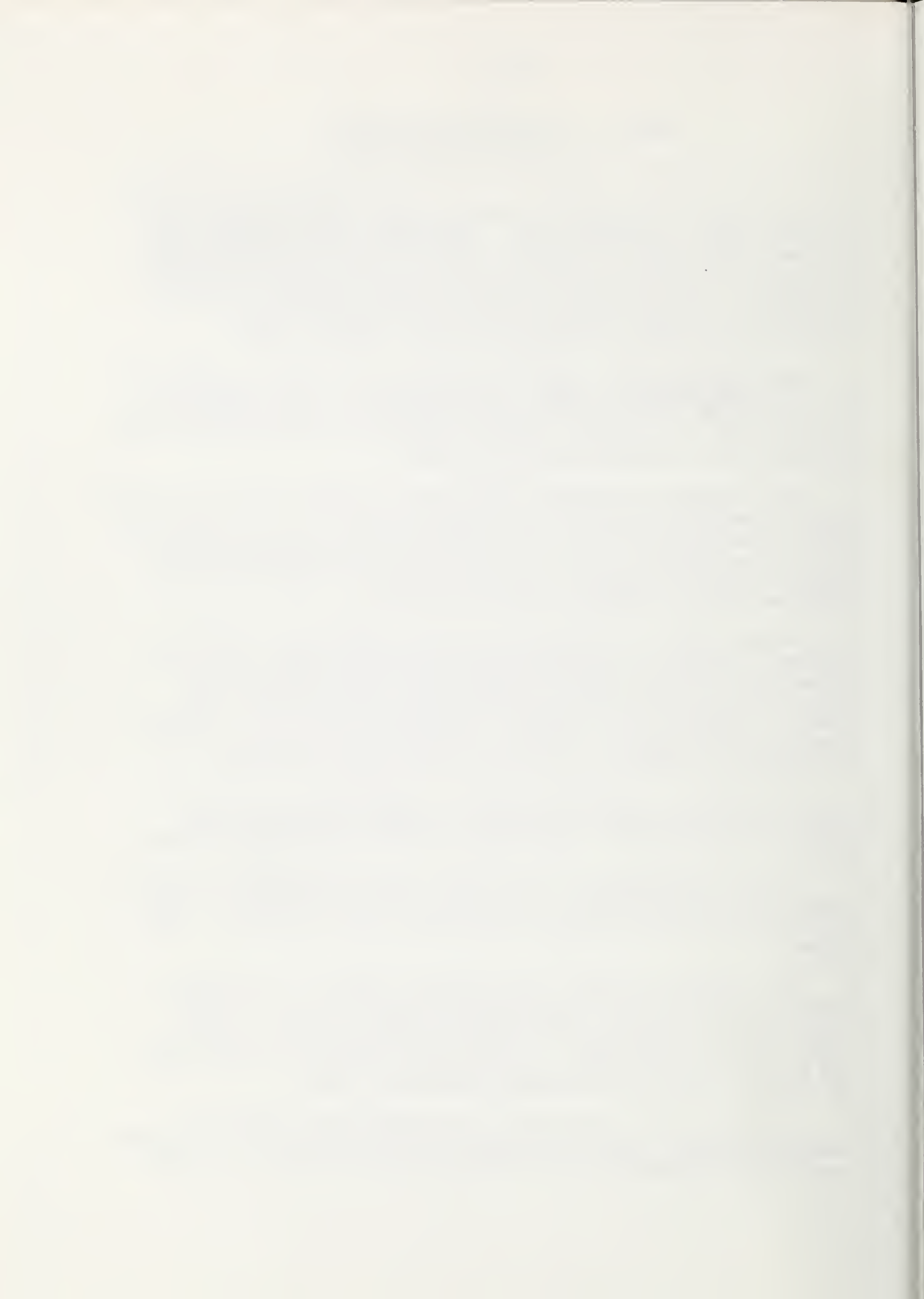
The MDCS will be provided with a unique opportunity to acquired imported technology and to accumulate fixed capital assets in the form of the plant, refinery and bottling operation in a relatively short period of time under Burmese standards, even operating with current levels of availability of oilseed. The project will result in the creation of a limited number of jobs (as discussed in the economic analysis) in the Magwe facilities and in support services and construction.

The Ministry of Cooperatives (and the Government of Burma) will benefit from institutional strengthening, better management, better planning, better and more training and new skills to do innovative work.

Township cooperative and industrial producers societies will benefit from (1) improved efficiency of expellers; (2) new techniques of repair for expeller parts and (3) greater demand for the production of oilseed farmers.

Other existing oil mills in the private sector will also benefit from more efficient operations and managerial skills. In addition, their ability to produce a better quality product and their economic viability will be enhanced. This activity is mandated in AID's Food and Agriculture Policy Paper in providing access for the private sector to technical information, services and materials (page 6).

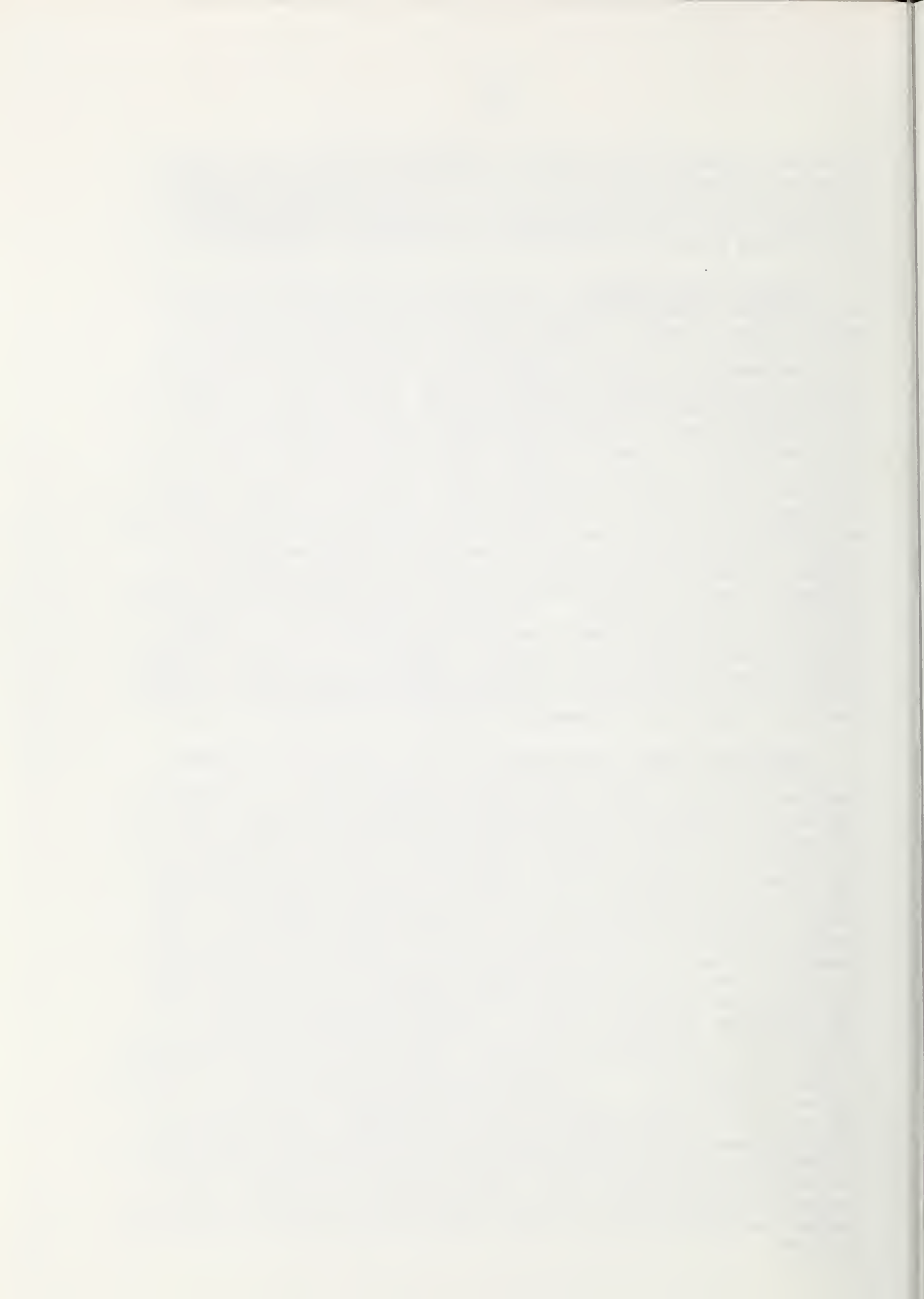
The United States manufacturers of equipment will benefit from increased business volume and the opportunity to expand a whole new market area. This involvement by U.S. private enterprise in the U.S. foreign



assistance effort is also mandated in the Food and Agriculture Policy Paper which specifies that "AID will develop mechanisms and processes to facilitate the involvement of the U.S. private business community in food and agricultural development, including technical assistance and training as well as direct and joint investment." (page 6).

Indirect Beneficiaries. The indirect beneficiaries of the project will be broad. The section on spread effect essential describes the major indirect impacts: (1) other investors encouraged by the success of the Magwe facilities; (2) immitators of innovations introduced into existing expellers; (3) the primary cooperative stores and minimarkets through improved management and MOC policies through better planning; (4) Burma as a whole from increased economic self reliance and stability; (5) the beneficiaries of other development projects which may use the high quality oilseed meal for animal feed; (6) private and cooperative farmers in Magwe, through increased volume of sales and the use of processing facilities capable of absorbing higher levels of production being encouraged by the Agriculture Corporation; (7) private farmers around the more efficient mills who may receive better prices for seed; (8) oil consumers (including farmers) who will have access to higher quality oil from both cooperative and private refined and unrefined sources. The refined oil and the better handled crude oil will have better shelf life and better cooking qualities. The case for the generation of nutritional benefits for addressing poverty-related malnutrition is not forecast during the early years of the project. However, as the volume of production increases and the price flexibility opportunities appear, the cooperative sector will be able to provide higher farm gate prices to farmers and retail prices to oil consumers, resulting from economies of scale.

Non-beneficiaries. The project will not have any adverse impacts on non-beneficiaries which can be clearly forecast at this time. It would be possible to assess the potential adverse imprcts if the Burmese agricultural production and food processing environment were static with the only variable being project-financed activities. In fact, production of oilseeds (a crucial variable in the benefit equation) is dependent on agricultural production which is in the process of changing technology and introducing innovation under climatic conditions which are unpredictable. The processing destination of current oilseed production is not exactly measurable, nor is the degree of hsi-zone processing and direct home consumption of oilseed precisely known. A best guess might be that of the 7500 metric tons per year needed, perhaps half is from hsi-zone oil production and a quarter each from cooperative and private expeller oil production in Magwe division. It should be emphasized that it is in the producers' interest to increase oil output from existing production, especially potential edible oil left in cake which generates little income, is fed to animals or is causing stored cake to go rancid. Another non-beneficiary would be other divisional syndicates. There is no evidence to indicate any adverse impact on these syndicates. None of the other divisions have, at this time, levels of oilseed production adequate to economically operate such a plant. (However, there will be some benefits of other components which fall to other divisions.) Private oil distributors and Malaysian oil sources will experience little impact from proposed production which is a very small portion of total oil consumption in Burma.



PART IV: Summary of Constraints and Remedies

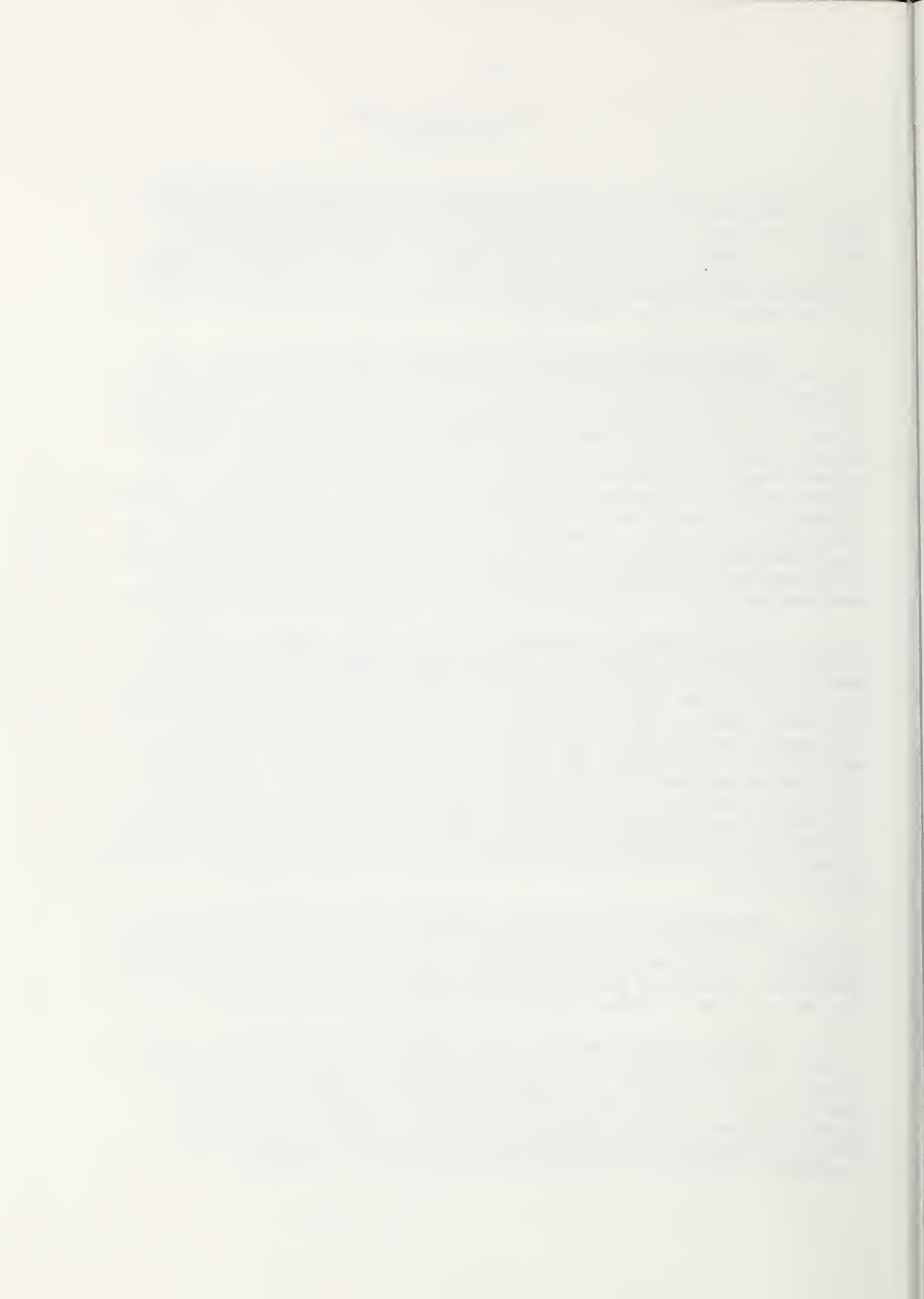
The above analysis of project compatibility with the socio-cultural environment, the likelihood of spread effect and diffusion of benefits among different groups strongly supports the determination that the project (as described in this project paper) is socially sound. Largely, this determination is possible because the design has taken into account a number of constraints to development and has devised remedies for them. The following list summarizes them.

1. Appropriateness of Assistance to the Cooperative Sector. The notion that Burma's cooperatives are parastatal in character is not borne out by close examination of the facts. It is true that the Government of Burma supervises and provides technical and advisory assistance to cooperatives. It is also true that the functioning of cooperatives is affected by political considerations. However, in the judgement of the team the current degree of state and political influence in cooperatives is consistent with the management requirements that exist in all levels of Burma's cooperative system, given the lack of grass-roots human resources for cooperative leadership. Therefore, the project proposes to reinforce the local management capabilities of the MDCS and township societies in Magwe (and elsewhere) to create a better working system of cooperatives with new opportunities for informed grass-roots involvement in decision-making.

2. Possible Adverse Consequences to the Private Sector. The fear that the cooperative sector, with new project-financed technology will have an unfair and dominant advantage either in procurement of oilseed or in forcing down retail prices to the private producers seems unfounded. The market share of the cooperatives in retail sales will be so small that no impact on private sector prices which are set by market conditions is anticipated. Furthermore, the project's major commitment of resources will involve equipment manufactured and installed by a U.S. private manufacturer, creating no private sector benefit and potential influence on the entrepreneurial spirit of Burma's cooperatives. Finally, the package of adaptive technology transfer and technical assistance will assist Burma's private sector oil processors to make the most of their equipment and become more efficient.

3. Complexity of the Technology Package under Burmese Conditions. The fear that operating a solvent extraction plant is beyond the Burmese capabilities is not found to be warranted. Prior experience in Burma and elsewhere indicates that a basic requirement for literate and hardworking staff can be easily met in Burma where the literacy rate is above 60%.

4. Safety Issues. Concerns about safety, stemming from prior Burmese experience with explosions and fires at "batch" type solvent plants are found to be exaggerated. Although safety precautions and prevention equipment must be used, the technical analysis indicates that current state-of-the-art hexane detectors, electrical installations and fire prevention equipment plus safety education, an on-going training and management program will make the plant quite safe to operate.



5. Consumer Resistance to Refined Oil. Prior experience with consumer resistance to the tasteless, odorless quality of rice bran refined oil in Burma has created concern over the acceptability of refined peanut and sesame oil. Technical analysis indicates that the refining process can be adjusted to limit the amount of bleaching. The refining of peanut oil will not remove as much of qualities desired by the Burmese consumer to make it totally bland. A consumer preference survey indicated that consumers were quite concerned about bad odors and taste due to rancidity, acidity, and bitterness which would be removed by refining. Refining also adds shelf life to oil. Therefore, in sum, the project has been designed, taking into account these preferences and recommends refining as a needed and flexible part of the solvent extraction process.

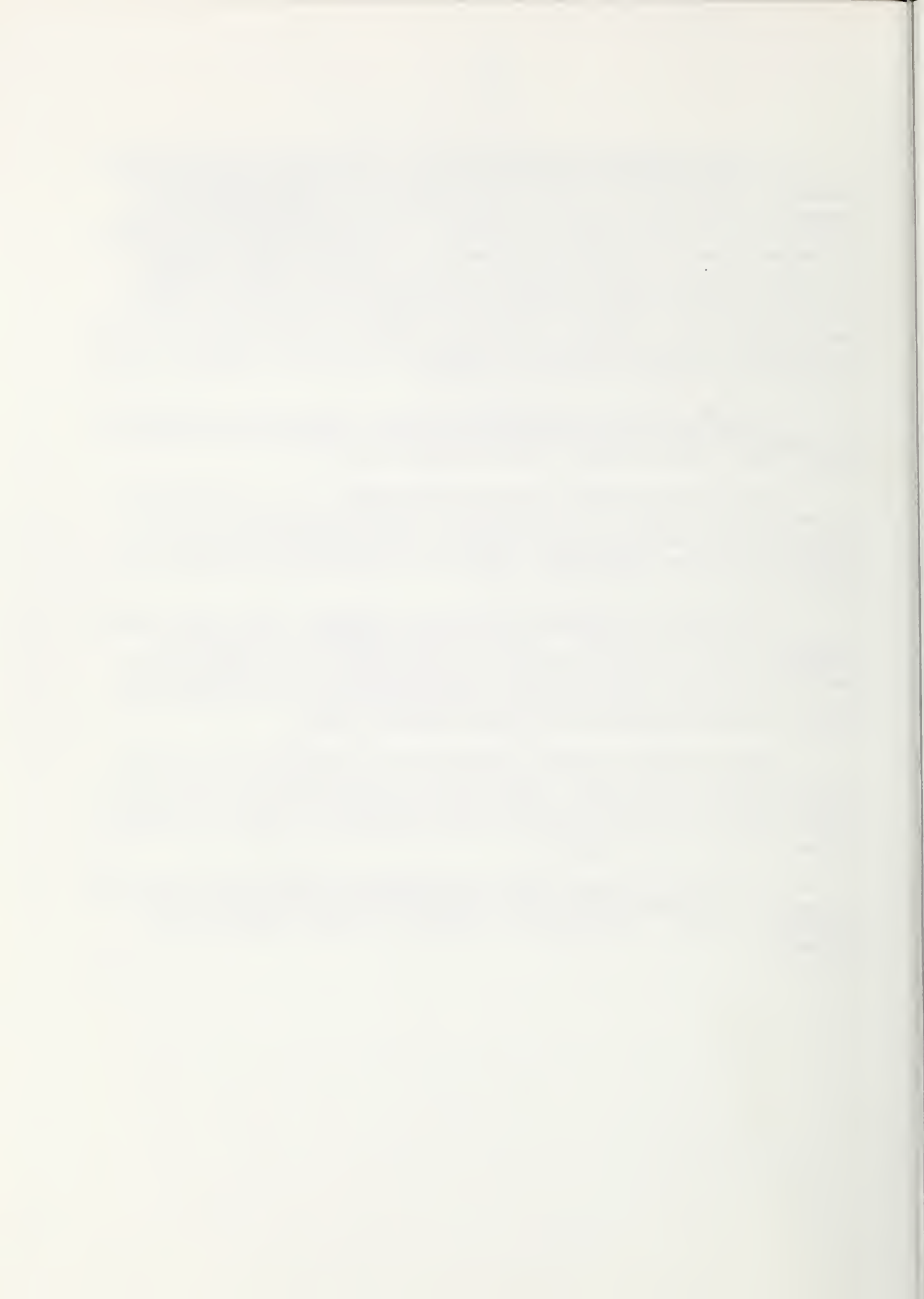
6. Benefit Incidence on the Malnourished. Although this desired effect has support in Burma, the likelihood of positive nutritional impact until several years after the plant is in operation is low.

7. Bureaucratic Problems with Other Ministries. A.I.D. should make a covenant to the project which deals with conditions outside the control of the recipient ministry which influence project implementation such as permission to import commodities, financial arrangements and permission to train target populations outside Burma.

8. The Burden of Packaging Costs on The Consumer. The Burmese economy is specialized in recycling. The containers recommended for edible oil packaging, one-viss plastic bottles with tamper-proof but reuseable caps, are consistent with current patterns of oil purchases. It is anticipated that the containers, which will be collaborated with measuring marks will be desirable and reusable and will have intrinsic worth.

9. Gender Roles. No special component for the participation of women in this project is necessary. The status of women in Burma is relatively high and women are expected to participate in project activities and benefits. Project evaluation should verify this with information collected on participation of women in all components.

10. Technical Assistance, Experts and Advisors and Cultural Sensitivity. The project recommends some Burmese language and culture training for all technical advisors. Fluency will be difficult to find, although highly desirable.

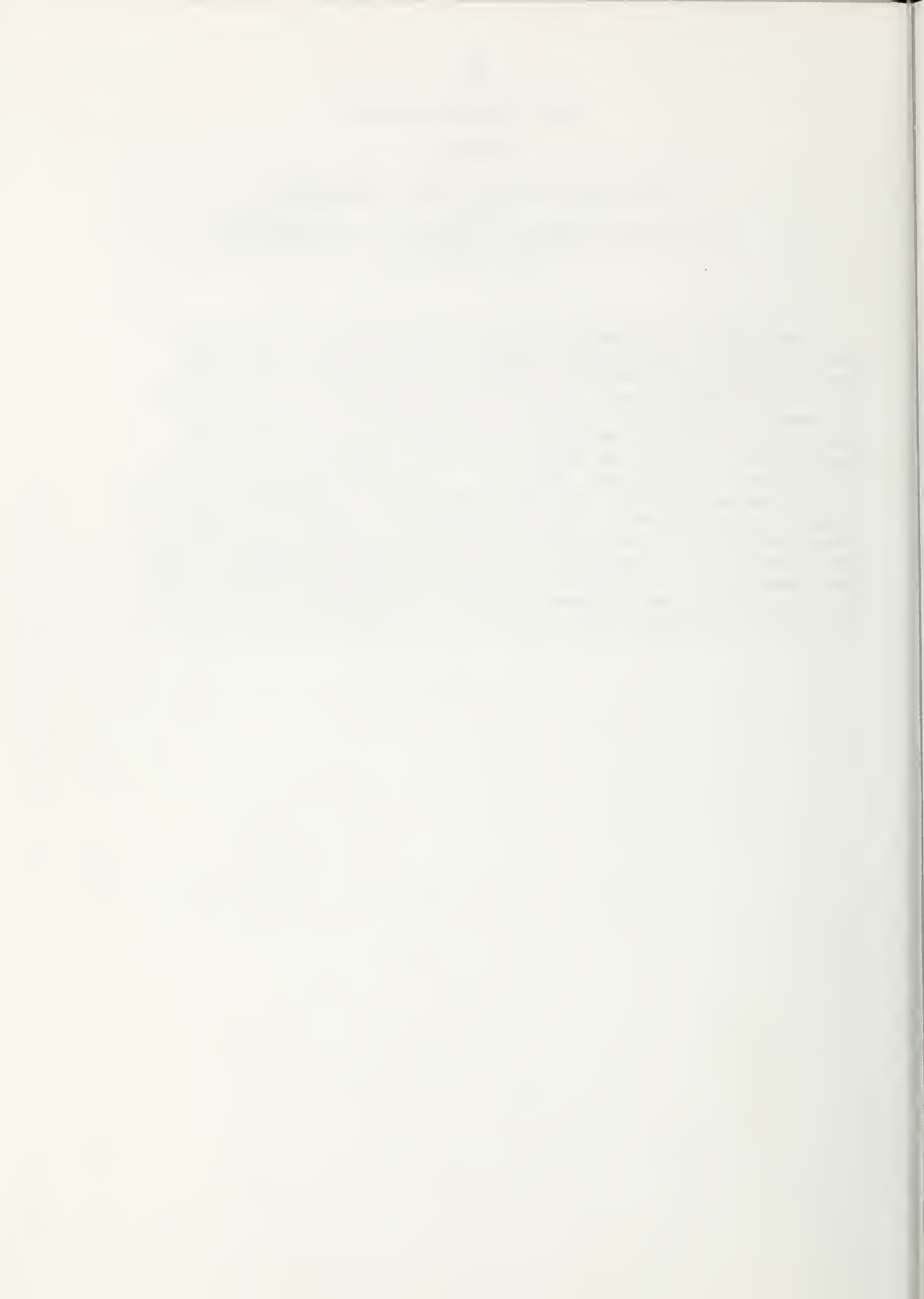


SOCIAL SOUNDNESS ANALYSIS:

APPENDIX I

RAPID RURAL APPRAISAL SURVEY INSTRUMENTS
ON
OIL PURCHASE QUANTITY, OIL QUALITY, OIL CONTAINERS,
.. AND OIL MARKETING

The attached questionnaires were designed by the social analyst in consultation with the economic analyst. Four additional interviewers from the MOC were trained by the social analyst to assist her in the collection of these data. The procedures used were for each interviewer to conduct a field test. Then a group discussion was held where the findings were discussed with each interviewer in front of the others. Reasons for not suggesting answers and unclear aspects of the English version were discussed among the group. A standard procedure for recording data was agreed upon. The social analyst and interviewers worked as a team to calculate the descriptive statistics on quantity purchase. All other analysis is the sole responsibility of the social analyst herself. The probable bias in the sample is in the direction of greater affluence, but a wide range of variation in responses was nonetheless found. The bias should not affect recommendations since the better quality oil will logically be desired by that segment of the population who can afford it.



Oil Consumer Survey

Name of Ward

Questions for Consumers

1. What is the largest amount of oil you have bought at any one time ?
2. What is the smallest amount of oil you have bought at any one time ?
3. What is the usual amount of oil you buy at any one time ?
4. Why do you sometimes buy more or less than the usual amount ?
5. What kind of container do you have with you today ?

Size

0-10 tickels
10-25 "
25-50 "
50-100 "
more than 1 viss

Materials

glass
plastic
tin
other
specify

Shape

bottle
rectangular
container
cup
other

6. What kind of oil are you buying today ?
7. Rank the kinds of oil in order of your preference ?
8. Why do you prefer the first ranked type ?
9. What is your major complaint about oil quality ?
10. What type of store are you buying oil in today ?
11. What other type of store do you sometimes buy oil in ?

Price Type oil

Oil Retailer Survey

Name of Word

Container Size

Questions for shopkeepers,

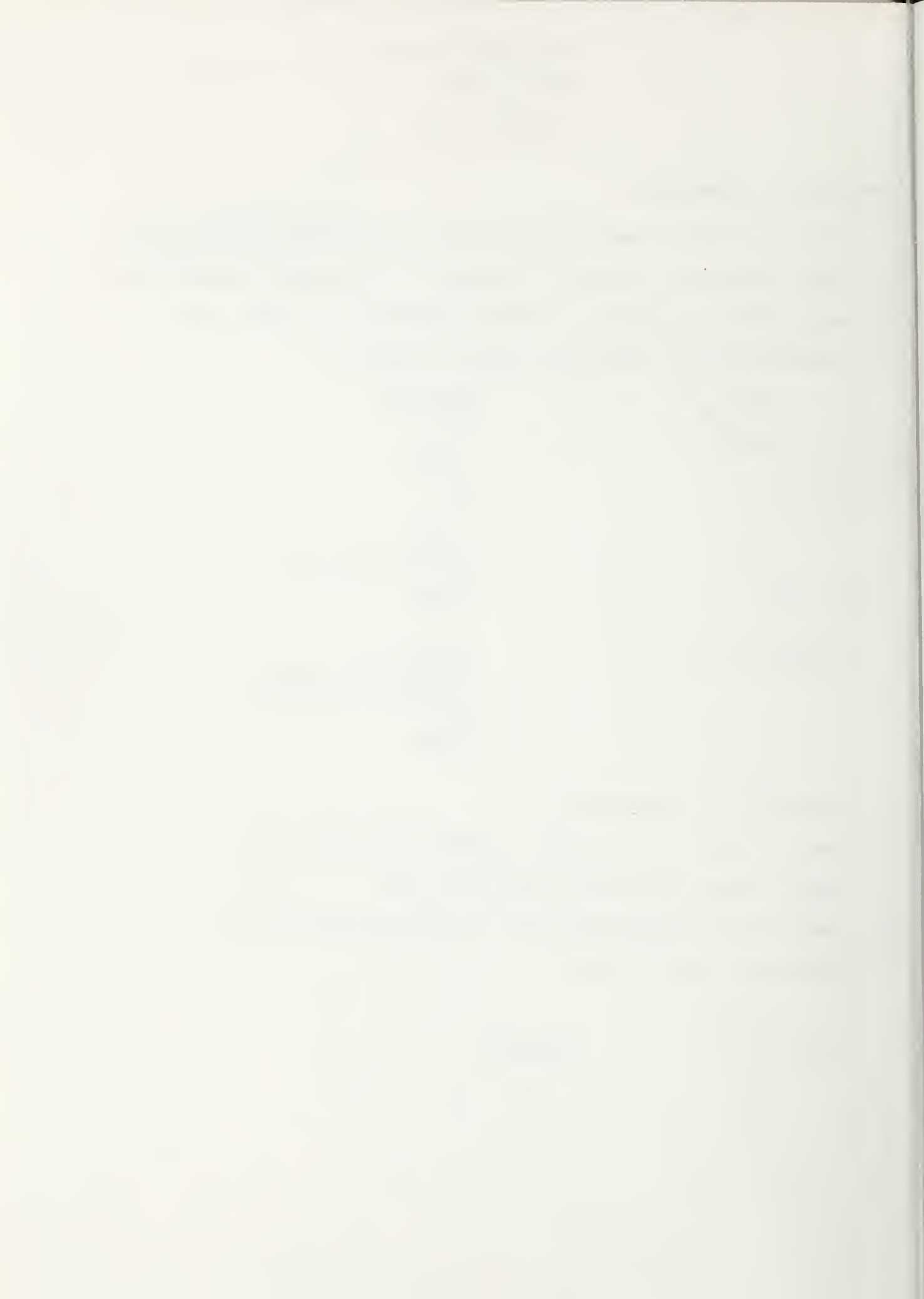
1. What is the largest amount of oil you sell to a customer at any one time ?
2. What is the smallest amount of oil you sell to a customer at any one time ?
3. What is the usual amount of oil most customers buy at any one time ?
4. Describe containers brought by customers to buy oil.

<u>Size</u>	<u>Materials</u>
0 - 10 tickels	glass
10 - 25 "	plastic
25 - 50 "	tin
	other
	specify _____
50 - 100	<u>Shape</u>
More than 1 Viss,	bottle
	rectangular container
	cup
	other

5. What kind of oil do you sell ?
6. Rank the kinds of oil in order of consumer preference.
7. Why do consumers prefer the first ranked kind ?
8. What qualities of the kind of oil do consumers complain about ?
9. What type of store is this ?

Price

Type Oil



SOCIAL SOUNDNESS ANALYSIS:

APPENDIX II

MAGWE FARMERS

SURVEY INSTRUMENT

The attached questionnaire was designed by the social analyst to assist the institutional analyst. The social analyst had no opportunity to test or apply the questionnaire and the responses were obtained by the institutional analyst working with a team of two interviewers, both employees of the Ministry of Cooperatives who were relatively untrained in that function. These data may have interviewer bias induced by suggested answers, and prejudicial bias due to the involvement of government officials in the application of the questionnaires. They also are probably biased by selection of villages and farmers which tend to support government programs. This is why the respondents are referred to in the text of the analysis as "leading" farmers.



QUESTIONNAIRE FOR MAGWE FARMERS

Village Name _____

Township _____

1. Are you (an active, contributing) member of a village tract Cooperative?

Yes _____ No _____

2. What do you purchase at the Cooperative?

(Do not suggest answers.)

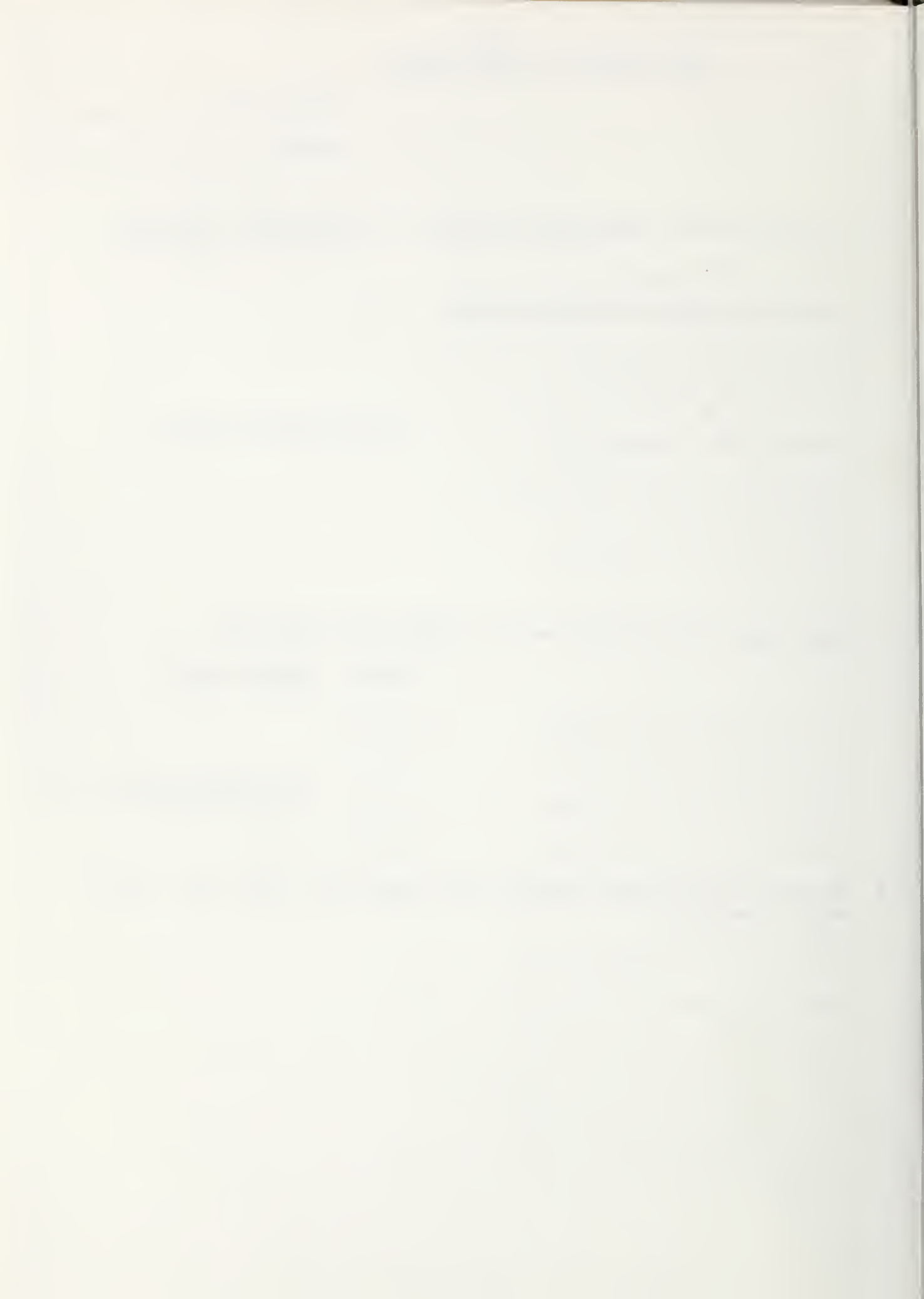
3. What products (crops) do you sell (or trade) to the Cooperative?

	<u>Price</u>	<u>Advance Payment</u>
--	--------------	------------------------

_____	_____	
_____	_____	
_____	_____	
_____	_____	

How long before Harvest do
you get advance?

4. Do you pay cash for your purchases at the Cooperative? What items? Under what circumstances?



5. How much land do you farm?
Of _____
6. How many baskets do you sell to the Cooperative ? (Price)

7. How many baskets of _____ do you sell to others _____?
(Price)
8. Who are the others you sell to?

9. How many baskets do you give as gifts?

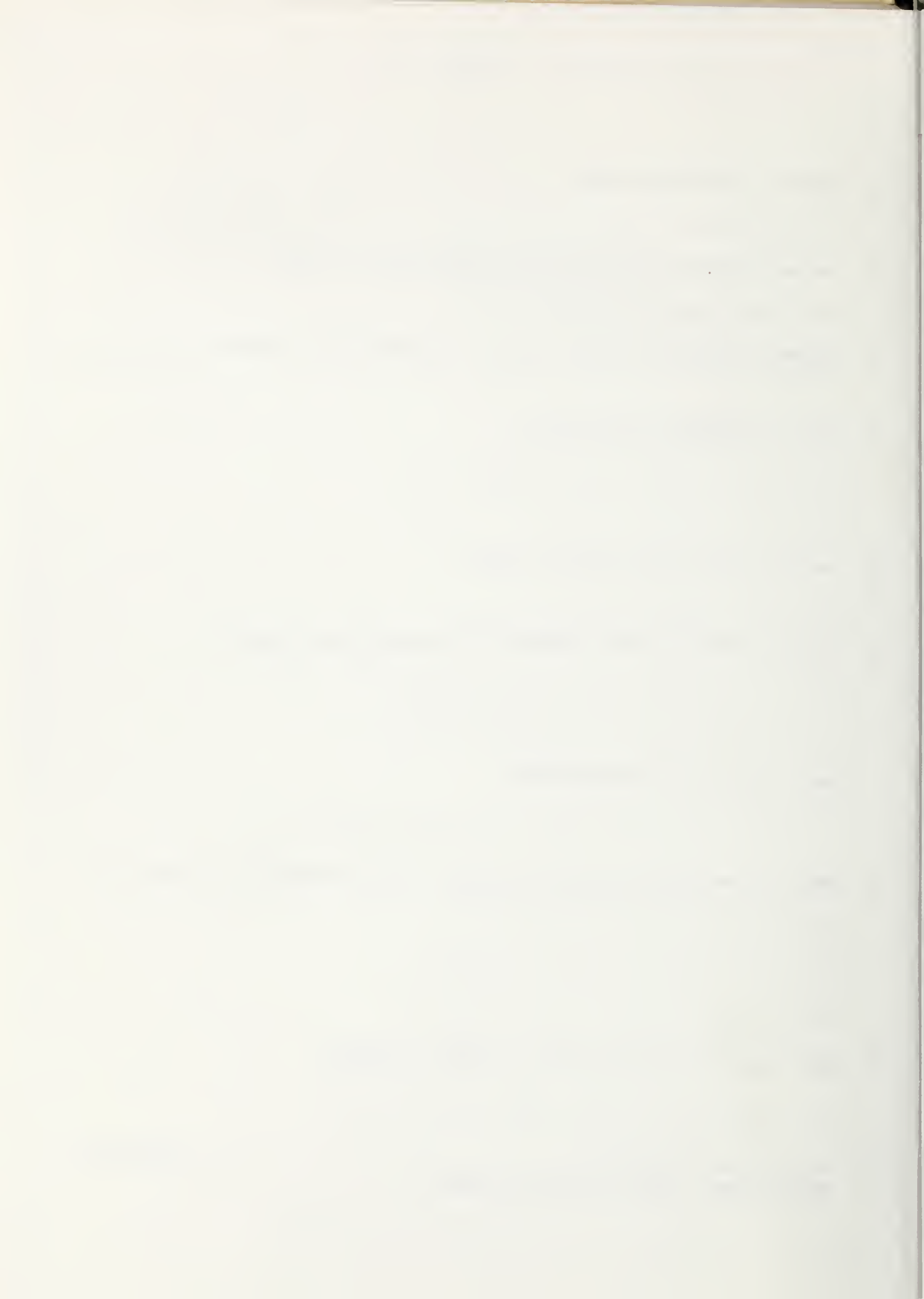
10. How many baskets do you exchange for other goods? What goods?

11. When did you join the Cooperative?

12. Where do you purchase production inputs? i.e. fertilizer, tools, seed

13. What production inputs do you not need to purchase?

14. When you buy inputs from _____, how do you
pay for them? When do you pay for them?



15. Do you ever borrow to finance your farming activities? From whom ?
What interest rate? How long before you pay the money back? Limits to
Ag. Bank or other credits?

16. When you joined the Cooperative in _____, Why did you join?

17. What are the advantages now, today, of belonging to the Cooperative?

18. Under what circumstances would you sell more of your oilseeds to the
Cooperative?

19. Describe how the Cooperative works, as an organization. How do you participate
in its affairs?

20. In this village, is any land farmed in a collective manner with more than
one household participating?

21. How much land out of all the land is farmed that way around here?



22. Rebates or add-ons to prices paid by Cooperatives?
23. Lower prices on oil or oil cake purchased from Township Cooperative Society Oil Mill if farmer sells oilseeds to the society?
24. How do you decide how many baskets of sesame and groundnuts you will sell to the Cooperative? What proportion do you sell of each?



Results of Magwe Farmers Survey

General Notes

- 1) All land in villages is formed individually except for 10 acres formed communally, on a voluntary basis for the benefit of the primary school. Although VTS #2 is an "unsuccussful lower level" coop, but no land seems to be formed communally . (Q 20 & 21)
- 2) All heads of households (over 600) are members of the VTS, Kan Bya, in Magwe Township. The population is just over 3200, so the member of persons per household is C.5. (Q 1)
- 3) Survey of six farmers in AM, and 5 in PM in also in
- 4) Interview results numbered 1 to 10, with questions grouped more logically and with numbers of original question shown in parentheses after the topic heading.
- 5) Members of VTS #1 said they gave no gifts and did not barter oilseeds for anything else. (Q 9 & 10)
- 6) All member purchases from Coop and from other sources as well are for cash; it's a Coop regulation.

<u>Date joined Coop (#1 & 11)</u>		<u>Co-op Co-op Offices held (19)</u>	<u>No. of acres farmed (5)</u>
1	1962	EC member, inspection team; goods	6
2	1962	EC chairman 1962-66	30
3	1973	—	5
4	1962	EC member since 1978	11-5
5	1966	EC member, 1977-78	12
6	1962	EC member since 1971	3+
7	1963	—	18
8	1962	—	19
9	1962	—	17
10	1962	EC member for 2 years	10
11	1970	EC member (V Churn) 7 years	10

*No barter in VTS #2, but 3 interviewers gave 5,5,&3 g.n. plus 1.0, & 1 sesame as gifts.

(11+)+(15-)=13-

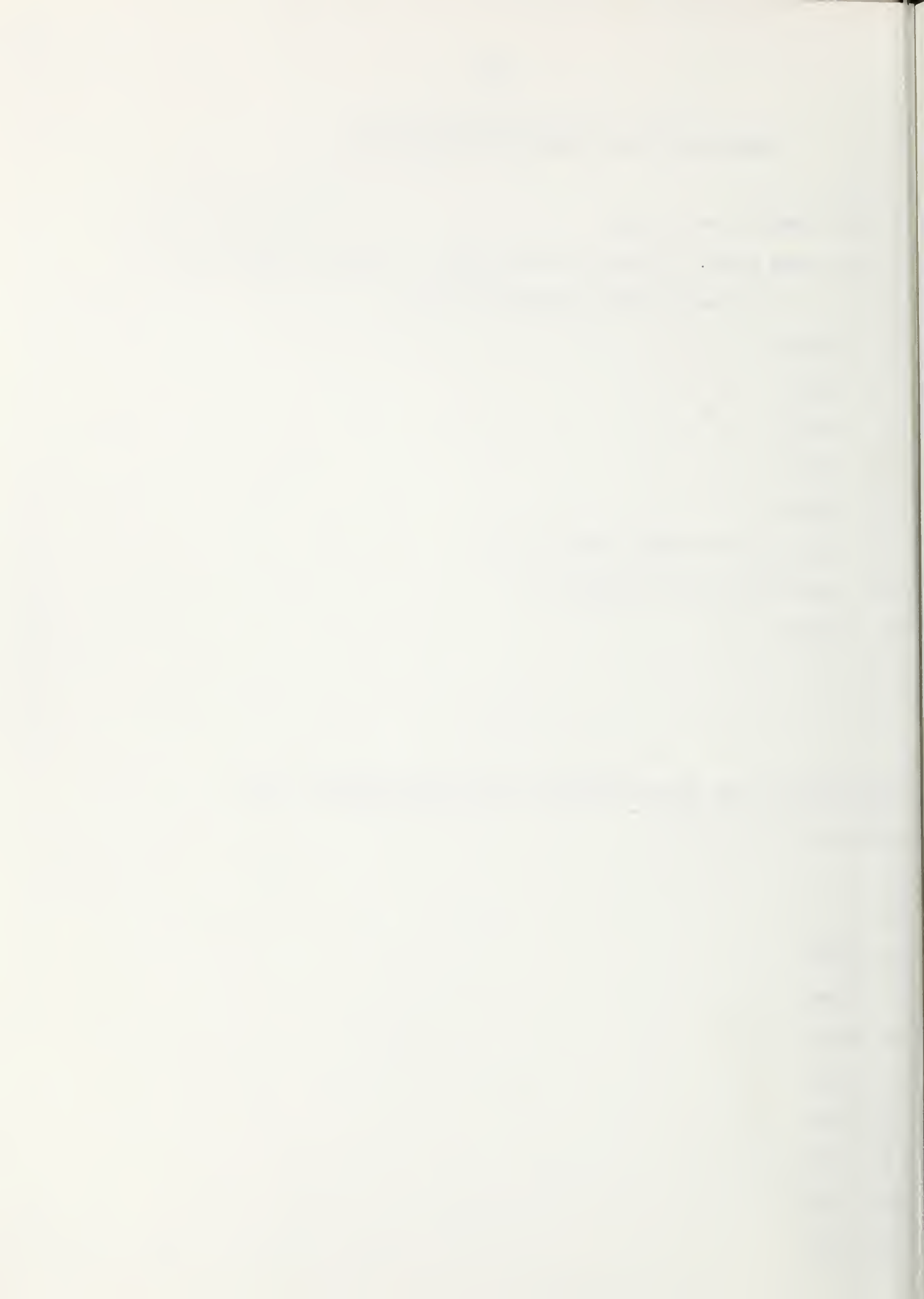


Reasons given for joining the VTS (16 & 17)

1. Cons goods at lower prices
2. Cons goods & fert. & seeds at lower prices, dividends on shares
3. " " at lower prices, dividends on shares
4. Ditto
5. Ditto
6. Ditto
7. Ditto
8. Ditto
9. Ditto; also EC member asked him to
10. Cons gds & fert. at lower prices
11. Ditto

Circumstances under which former would sell more oilseeds to Co-op

1. Higher price by Co-op
2. " " " "
3. " " "
4. Ditto
5. Ditto
6. Ditto
7. Ditto
8. Ditto
9. Ditto
10. Ditto
11. Ditto



Sales to Co-op (3 & 6), incl. advance Kyat

1.	8 ses @ K.118	20 g.n.	@ K.30 (for crush) + K.35 (for seeds)	
2.	? (about 35%) @ K118 ^{110} _{+8}	? (about 35%) @ K.35		
3.	7 ses @ K.118 (75+43)	30 g.n.	@ K.30 & K.35 (25+10)	
4.	22 1/2 ses @ K.118 (85+33)	10 g.n.	@ K.30 & K.35 (25+10)	
5.	20 ses @ K.118 (100+18)	48 g.n.	@ K.30 & K.35 (27+8)	
6.	5 ses @ K.118 (85+33)	15 g.n.	@ K.30 & K.35 (25+10)	(3 mos)
7.	27 ses @ K.118 (85+33)	40 g.n.	@ K.35 (25+10)	(1 1/2 mos)
8.	35 ses @ K.118 (85+33)	90 g.n.	@ K.35 (25+10)	(1 1/2 mos)
9.	28 ses @ K.118 (85+35)	38 g.n.	@ K.30 & K.35 (25+10)	(1 1/2 mos)
10.	95 ses @ K.118 (85+33)	-	(25+	(1 mo)
11.	12 ses @ K.118 (85+33)	90 g.n.	@ K.33+K.35 (25+10)	(2 mos)

Sales to Others (7 & 8)

<u>SESAME</u>			<u>GROUNDNUTS</u>	<u>TO</u>
1.	15 Bakts @ K.200		50 @ K.50	Private trader
2.	57 " @ K.175 to 200		200 @ K.37 to 42	"
3.	10 " @ K.200		50 @ K.45	"
4.	40 " @ K.180 to 200		20 @ up to K.60	"
5.	38 " @ K.180		52 @ K.63	"
6.	- -		10 @ K.40	"
7.	50 " @ K.160		120 @ K.40-K.45	"
8.	50 " @ K.180		150 @ K.50	"
9.	15 " @ K.160		-	"
10.	60 " @ K.200		-	"
11.	30 " @ K.200		50 @ K.60	Private traders(ses) & other T.Soc. (g.n.)



Sales to Co-op as % of total sales

SESAME					GROUNDNUTS			
	Co-op	Other	Total	% Co-op	Co-op	Other	Total	% Co-op
1.	8	15	23	35%	20	50	70	29%
2.	? (31)	57	? (88)	C. 35%	? (108)	200	? (308)	C. 35%
3.	7	10	17	41%	30	50	80	38%
4.	22.5	40	62.5	36%	10	20	30	33%
5.	20	38	58	35%	48	52	100	48%
6.	5	-	5	100%	15	10	25	60%
Sub-	(93.5)	103	165.5	38%	(231)	382	613	38%
Total	62.5	(160)	(253.5)	(37%)				
7.	27	50	77	35%	40	120	160	25%
8.	35	50	85	41%	90	150	240	38%
9.	28	15	43	65%	38	-	38	100%
10.	95	60	155	61%	-	-	-	-
11.	12	30	42	29%	90	50	140	64%
Sub	197	205	402	49%	258	320	578	45%
Total	(290.5)	(365)	(655.5)	44%	489	702	1191	41%

Who makes decision on how much oilseed farmers sell to T.Co-op Society ?

7-6 : Farmers not asked

7. Township Oilseed Purchasing Committee (TOPC) Last year it was 35% of farmer's production.
8. Ditto. Note that VTS purcha. Com. tells each farmer how many baskets of oilseeds this will amount to
9. Ditto Ditto
10. Ditto Ditto



Inputs by Source (# 12 & 13)

<u>Farmer No.</u>	<u>VTS Co-op</u>	<u>State Agri. Corp</u>	<u>Private</u>	<u>Own Farm</u>
1.	Seed	Fertilizer	Tools	-
2.	(17: Fert & Seeds)	"	{Some g.n.seeds {Fertilizer	Some g.n. seed Sesame seed
3.		"	{Tools {Fert.,some g.n. seed)	Some g.n. seed Sesame, manure
4.		"	Fert, g.n. seeds, tools	Sesame, seed, Manure
5.	Tools	"	Fert, tools	Seeds
6.		"	Fert,tools, seeds	Tools
7.		"	Fert, g.n.,tools	g.n. & sesame
8.		"	Fert, g.n. seeds	sesame seeds
9.	Tools	"	Fert, g.n.,tools	sesame & g.n.
10.	Tools (17:Fert.)	"	Fert, tools	sesame
11.		"	Fert, g.n.,tools	sesame, manure

NOTES

1. Fertilizer from the State Agriculture Corp is supplied through the Cooperatives.
2. Some farmers apparently did not consider seeds or manure as an input, so a dash does not necessarily indicate they supplied no inputs other than labor. Where a farmer said he supplied no inputs but elsewhere he indicated he did (as in case of farmer #2), I added this info.



Credit Sources (15 & 25)

Sources & interval rate & average time before repayment

1.	Agri. Bank,	1/2 % per mo.,	(did not ask this period)		
2.	(which is under Min. of Agr. & Forests)	1 % " "	, 4 mos		
3.	"	1 % " "	, 6 mos		
4.	"	1 % " "	, 5 mos	<u>Per acre limits to lending</u>	
5.	"	1 % " "	, 7 mos	<u>G.N.</u>	<u>SES</u>
6.	"	1 % " "	, 7 mos	K.100	20
7.	Agri. Bank	1 % " "	, 7 mos	K.100	20
8.	"	1 % " "	, 7 mos	K.100	20
9.	"	1 % " "	, 6 mos	K.100	20
10.	"	1 % " "	, 7 mos	K.100	20
11.	"	1 % " "	, 6 mos	K.100	20

NOTE:

- (1) All interviewers said 1%, except for the first farmer, who obviously had some difficulty with the question and who changed his answer, tho I don't recall what his first answer was.
- (2) The q. re advances from Coops was asked only of the sixth farms at VTS #1 and of all persons at VTS #2. They report an advance of K.85 (72%) on sesame seeds, and 25 (about some percentage on average) for groundnuts. Others also said anyhow. Only one person (VTS 1, Interviewer #1) reported "rebates", which he said were last made in the mid 1970's. We did not have straight at first in our own minds that "advances" and "add-on are the way the system seems to work.



Consumer Goods, Purchased from Cooperatives (#2)

1. Cloth, soap, lotteries, candles, etc.
2. Cloth, rice, cooking oil, etc.
3. Rice, cloth, other consumer goods
4. Rice, cloth, consumer goods
5. Cloth, consumer goods
6. Oils, rice, cloth, etc.
7. Cloth, rice, oils, etc-
8. Consumer goods (also fertilizer noted)
9. Consumer goods (also farm tools noted)
10. Rice, oil, cloth (also farming tools noted)
11. Rice, cloth (also farming tools noted)

NOTE:

Question asked was regarding purchases from Co-ops but apparently it was asked differently at second village (Nos 7-11), so they include production inputs, whereas at first village they noted only consumer goods.



SOCIAL SOUNDNESS ANALYSIS:

APPENDIX III

EVALUATION
APPROACH:

SURVEY INSTRUMENTS



Instrument for Estimating Total Income of The Farm Household

Total income of farm households, especially those with small holdings, come from a wide variety of sources. The estimate of total annual income (or for another time period) is almost impossible without a continuous process of data collection concerning the possible sources. It is sometimes possible sometimes to use existing household income and expenditure survey, to obtain these data. But in most cases what we try to do is measure each component carefully and in a form which is consistent from time to time. This way we will be able to estimate many components of income for specific periods, but the extrapolation of these income data to the complete year will still be risky.

In general, total income of small farmers come from the following sources:

A. Income derived from agriculture

1. sales of annual, semi permanent and permanent crops.
2. sales of animals and animal products
3. the value of farm products consumed by the household

B. Income derived from handicrafts or other activities undertaken by members of the household working at home.

C. Income derived from labor on nearby farms which permits the worker to return home each night.

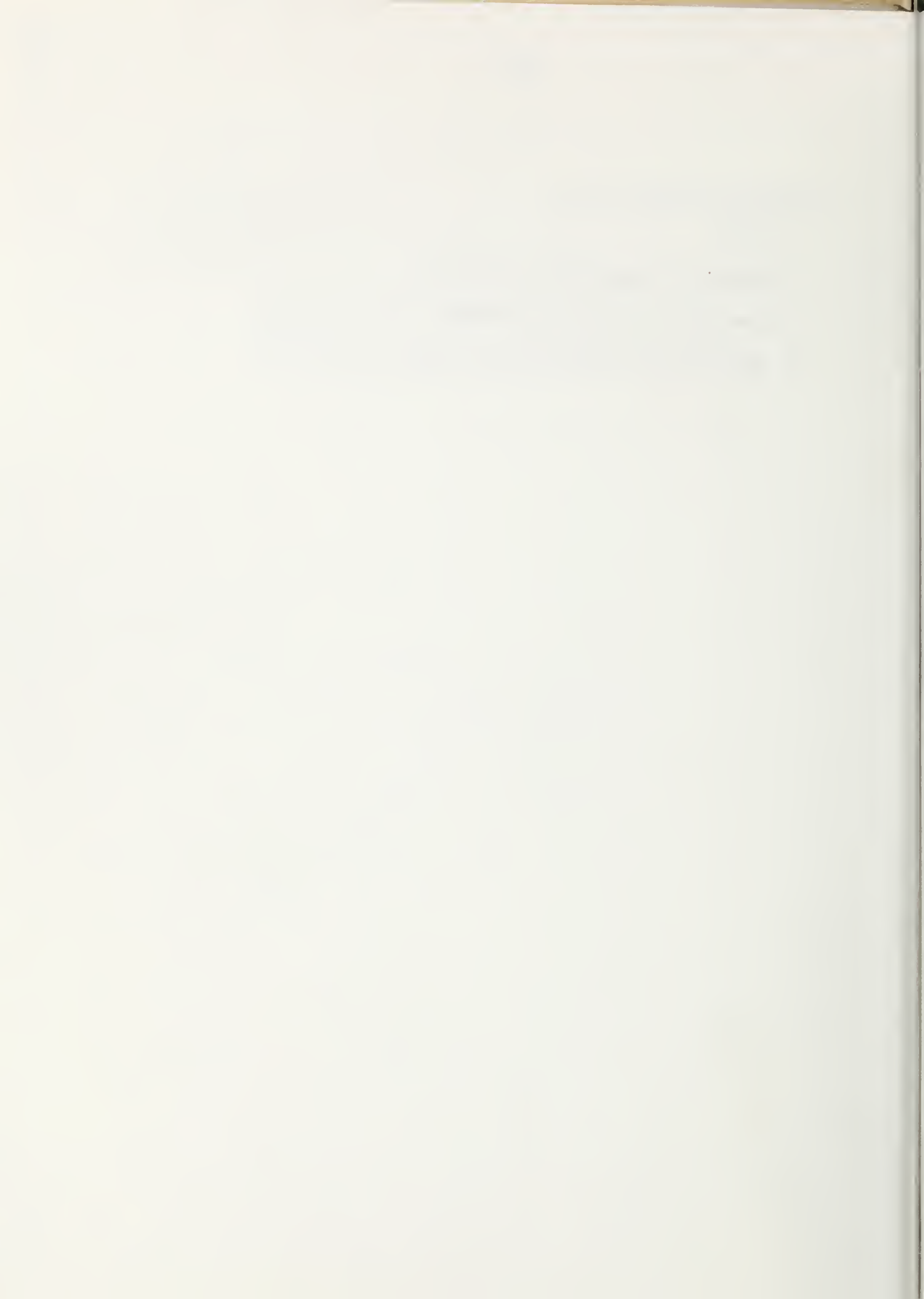
1. that of the head of household
2. that of other adult members
3. that of minor children.

D. Income derived from migrant labor where the worker does not return home daily.



E. Income from other sources

1. rents
2. pensions or payment for prior work
3. transfers from persons not members of the household
4. donations from government or international entities.



I. Suggestions for Instruments on employment and Income outside the farm.

A. Data on the Head of Household

1. Do you (or the head of household) have a permanent job outside this farm ?

Yes _____ No _____ (If no, pass to question 5)

2. What type of job do you have ?

Code _____ Agricultural work on someone else's farm

_____ Non-agricultural work

3. How much time do you normally spend in this job ?

_____ days per month

_____ days per week

_____ hours per day

4. How much do you earn in this job ?

Kyats _____ per _____ month

_____ day

_____ hour

5. Have you (or the head of household) worked outside the farm in the last year for any period ?

_____ yes _____ no (if no, pass to question 9)

6. What type of work did you do ?

Code _____ Agricultural work on someone else's farm

_____ non agricultural work

7. Where: Division _____ Township _____ Village _____

How far ? _____ miles.

8. When was the last time you worked there? _____ days ago.



9. How long did you work ? _____ days _____ weeks _____ months-?
10. How much did you earn in that job? Kyat _____ per _____ month
_____ day
_____ hour
11. During that period in that place how many days did you spend without working when you wanted to work about _____ days.
12. When was the last time that you went to that job ? _____ days ago.
13. How much time did you work that time ? _____ days _____ weeks
_____ months.
14. Have you (or the head of household) worked off the farm in the last year in another job for a time ?
_____ Yes _____ No (If no, pass to question 19)
15. What type of work did you have ?
Code _____ Agricultural work on someone else's farm
_____ non agricultural work.
16. Where? Division _____ Township _____
Village _____
17. When was the last time that you worked there ? _____ days ago.
18. How much time did you work ?
_____ days _____ weeks _____ months.



19. How much did you earn in that job ?

Kyats _____ per _____ month.

_____ day

_____ hour

20. During that period in that place, how many days did you spend without work when you wanted to work.

About _____ days.

21. When was the last time that you went to that job ?

_____ days ago.

22. How much time did you work that time ?

_____ days _____ weeks _____ months.

B. Data on another member of the family

Relationship to head of household

_____ spouse _____ son or daughter _____ other

relative _____ no relationship

(repeat question 1-22)

C. Repeat B.



II. Suggestions for Instruments on Employment/Income from Handicrafts

1. Does some member of this household work in the production of handicrafts ?

_____ Yes _____ no (If no, pass to the next page).

2. What type of handicraft ?

- Code 1. _____ Knitting or sewing
2. _____ ceramics
3. _____ painting, or sculpture
4. _____ leather working
5. _____ straw
6. _____ bamboo
7. _____ other

3. How frequently do you sell those products ?

Every _____ days.

4. When was the last time that these handicraft products were sold ?

_____ days ago.

5. How much did they earn from the sale that time ? Kyats _____

6. How much do you believe the materials cost which were used to make the products sold that day ? Kyats _____

7. How many days of work were spent in the production of the products sold that day ? _____ days



8. Who worked on the production of that which was sold that day ?

Name of person	Relationship to Head of household	How many work days	How much was he/she paid	Does he/she live in the household

9. Where do they sell most of these products ?

_____ Here at home

_____ In the market this village

_____ In the market of another village or town _____

_____ name _____ distance (miles)

Cost of the trip: Kyats _____ Time _____ minutes

_____ other. Place _____ Distance _____

Cost Kyats _____ Time _____ minutes

10. How much do you believe the unsold handicraft products in the house are worth ? Kyats _____

11. How many days from now do you believe that they again will market this type of product ? _____ days.

Source	Have you received from this source?		How many days ago? (#)	How much (Kyats)	How many days be- fore that ? (#)	How much than ? (Kyats)	When wi you again?
	Yes	No					
ents of houses							
ents of Land							
ensions							
ransfers from family members							
ransfers from others							
onations							
ottery/raffles							

Instrument to Measure Household Expenditures of Farmers

Part I: Frequent Expenditures

(To the Interviewer: For each day entered below, you should ask the interviewee, " How many days ago did you buy _____ ? How much do you have at home of _____ ? When did you go to buy more ? How much did you buy ? How much did it cost ? And How many days do you think what you currently have of _____ will last ?

Date _____

	How many days ago bought	How much do you have right now	How much did you buy	How much did it cost	How many days will it last
Foods					

Rice

Cooking Oil

Salt

Lentils

Other dried beans

Sugar

Milk(fresh)

Milk (Evaporated
milk)

Milk (Sweetened
Milk)

Milk (Powdered)

Coffee

Tea

Rice flour

Bean flour

Noodles(wheat)

Noodles(ridge)

Spices &
condiments

Fresh fish/
seafood

Bread

Sticky rice
(black)

Sticky rice
(white)

Bananas

Hpeegyan

Htaw-But

Theehmway

Shwe

Other

Salted Fish

(Ngachauk)

Fish Paste
(Ngapi)

Fish Sauce
(Ngapya-yei)

Coconut(whole)

Jaggery (sugar
from palm)

Potatoes

Onions

Chilies powdered

Whole red dried

" " fresh

■ green fresh

Fresh Vegetables

Cabbage

Water Cress

Pumpkin

Squash

Bean sprouts

Bean curd

Tomatoes

Egg plant

Green leafy veg

Bects

Carrots

Oranges

Tanguines

Pomelo

Custard Apple

Avocado

Pineapple

Grapes

Guava

Jade fruit

Lime/Lemon

Mango

Mariannes

Other

Sweets

Beef

Pork

Pork

Chicken

Mutton

Eggs

Sparkling/
Aerated Wafers

Beer

Liquors

Ovaltine & other
powdered beverages

(Frequent)

Other Purchases

Toilet soap

Washing soap

Detergent

Gas, Kerosene,
gasoline

Wood and charcoal

Candles

Lottery
tickets

Toothpaste

Thanatka

Other
Cosmetic

Radio batteries

Cigarettes

Cheroots

Matches

Lighters

Light bulbs

Hair oil/
cream

Shampoo
(imported)

Tha-yaw
(herbal shampoo)

Astrology

Part II

Less Frequent Expenditures

Religion

Christians

tithes

donations

fund raising

tapes

bazaars

Buddhist

Candles

Flowers

Offerings (donations)

Cash

food, robes

SOCIAL SOUNDNESS ANALYSIS:

APPENDIX IV

NUTRITIONAL IMPACT ANALYSIS

BURMA POPULATION BY SEX AND AGE

NUTRITIONAL IMPACT ANALYSIS

Burma: Estimated 1982/3 Population by Age and Sex with Estimated (Annualized) Energy Requirements

Age Group (years)	Sex	Population (000,000)	Per Capita Estimated Average Daily Energy Requirement (Kilocalories)	Daily Mean Caloric Intake	Average Daily Caloric Deficit
0-14	F	7.122	1500	--	--
3	F	--	1260	1178	82
0-14	M	7.210	1500	--	--
15-59	F	9.718	2400	--	--
Adult	F	--	2400	2213	187
(Non-pregnant, non-lactating)					
15-59	M	9.411	2800	--	--
20-24	M	--	2800	2799	1
60+	F	1.120	1600	--	--
60+	M	1.130	2200	--	--
TOTAL	F & M	35.680	2114 (Weighted Mean)		

Source: Department of Medical Research

SOCIAL SOUNDNESS ANALYSIS:

APPENDIX V:

RANGOON DIVISION POPULATION

Sex Distribution

Age Distribution

RANGOON DIVISION POPULATION

Sex Distribution

Sr. No.	Township	Nos.	%	Male	Female
1.	Kamayut	72061	2.01	35790	36271
2.	Gawmu	84973	2.37	42643	42330
3.	Kyauktada	39649	1.10	20027	19622
4.	Kyauktan	105963	2.95	52923	53040
5.	Kemmendine	67240	1.87	33510	33730
6.	Kunchangon	81238	2.26	40665	40573
7.	Coco Island	981	0.03	530	451
8.	Kayan	118950	3.31	58888	60062
9.	Sanchaung	74250	2.07	36807	37443
10.	Seikkan	4031	0.11	2090	1941
11.	Seikgyi Kanaungto	14460	0.40	7298	7162
12.	Tamwe	112126	3.12	55563	56563
13.	Twante	169263	4.66	83704	83559
14.	Taikyi	152781	4.26	72125	77656
15.	S. Okkalapa	168227	4.69	82946	85281
16.	Htantabin	88881	2.48	43848	45033
17.	Dagon	37553	1.05	19007	18546
18.	Dalla	48351	1.35	24981	23370
19.	Dawbone	40786	1.14	20204	20582
20.	Pazundaung	40495	1.13	19931	20564
21.	Pabeidan	41939	1.17	21320	20619
22.	Bahan	97748	2.72	29349	48399
23.	Botataung	46908	1.31	24128	22780

Sr. No.	Township	Nos.	%	Male	Female
24.	Mayangon	132166	3.68	66331	65835
25.	Mingala-Taungnyunt	103989	2.90	51700	52289
26.	Mingaladon	99655	2.78	50979	48676
27.	N. Okkalapa	178413	4.97	89657	88756
28.	Hmawbi	110779	3.09	55287	55492
29.	Yankin	76815	2.14	38038	38777
30.	Latha	31219	0.87	15266	15953
31.	Hlaing	142446	3.97	71351	71095
32.	Hlegu	152070	4.24	76133	75937
33.	Lanmadaw	43485	1.21	21536	21949
34.	Thaketa	184049	5.13	89469	94580
35.	Thingangyun	175188	4.88	87705	87483
36.	Thongwa	118116	3.29	58649	59467
37.	Thanlein	103490	2.89	51740	41850
38.	Ahlone	50791	1.42	25609	25182
39.	Insein	178795	4.98	89765	89030
	Floating) Population)	3101			3101
	TOTAL	3591521	100.00	1790492	1797928

RANGOON DIVISION POPULATION

AGE DISTRIBUTION

Sr. No.	0 - 18	18 - 60	60 - Above
1. Kamayut	34207	34190	3664
2. Gawmu	43959	36174	4840
3. Kyauktada	10519	27908	1222
4. Kyauktan	52690	45290	7982
5. Kermendine	33890	29470	3880
6. Kunchangon	29812	41552	9874
7. CoCo Island	521	448	12
8. Kayan	61825	50729	6396
9. Sanchaung	33286	36412	4552
10. Seikkan	1716	2164	151
11. Seikgyi Kanaungto	6941	7085	434
12. Tamwe	63303	42652	6171
13. Twante	78683	77931	10349
14. Taikyi	60043	80699	12039
15. S. Okkalapa	87603	73415	7209
16. Htantabin	45258	33815	9808
17. Dagon	15769	18628	3156
18. Dalla	24333	22169	1849
19. Dawbone	19188	20204	1394
20. Pazundaung	20466	18392	1637
21. Pabeidan	20401	13970	6568
22. Bahan	45765	43772	8211
23. Botataung	21651	24089	1168

Sr. No.	0 - 18	18 - 60	60 - Above
24. Mayangon	61384	57525	13257
25. Mingala- Taungnyunt	53670	45094	5225
26. Mingaladon	57492	37289	4874
27. N. Okkalapa	91960	67162	19291
28. Hmawbi	55063	52921	2795
29. Yankin	34742	37396	4677
30. Latha	14016	13250	3953
31. Hlajng	62878	63648	15920
32. Hlegu	66786	76691	8593
33. Lanmadaw	18634	22485	2366
34. Thaketa	82363	89030	12656
35. Thingangyun	90355	78204	6629
36. Thongwa	26860	22821	1110
37. Thanlein	82148	65738	30909
38. Ahlone	26860	22821	1110
39. Insein	82148	65738	30909
TOTAL	1711871	1620949	255600

SOCIAL SOUNDNESS ANALYSIS:

APPENDIX VI:

DATA ON RANGOON SYNDICATE

Questions for Rangoon Syndicate

Profit and Loss Statement

Cooperative Clinics

Credit Societies

Questions for Rangoon Syndicate

1. What functions does the Rangoon division cooperative syndicate perform ?

Functions.

General:

1. to deal with economic activities have large scale investments which cannot be handled at the township level.

2. coordination among townships within the division

3. representation of townships which are remote

4. Training: Have coop training schools

Rangoon

Pegu

Mon (Tenasserim & Mon)

Shan

Sagaing

Irrawaddy

Mandalay

.

Staffed by crop dept personnel but funded by the syndicate. Initial investment building land & equipment operating cost by Coop dept. Training school serves the division plus adjacent areas. Magwe personnel train at either Rangoon or Pegu.

5. Unique to Rangoon syndicate: export all Coop exports go through Rangoon. This is the only divisional or state syndicate allowed to do this.

2. What productive economic activities are undertaken by the syndicate?

Economic Activities

1. Transport Cooperative (repair & maintenance of vehicles also), (was syndicate 2)

2. Establishment of the Coop super market in Scott market

3. Export agents for other coop handicrafts, lacqueware, woodcraft, birdnest soap, textiles.

3. How is the management of each economic activity handled ?

They al(os) have so-called professional senior members . They do also have an exec. com membe- in charge of each act. The EC member actually in the manager.

4. How many members are on the E.C.? How many full and how many part time?

of EC members: probably 15 full time - chairman
2 VP
Sec

John Sec.

Some additional full & part time members. They are not all full time.

5. In what way does the syndicate participate in oilseed processing ?

Don't know.

6. Describe cooperative oil distribution system.

Oil distribution system: A. One channel of oil coming into Coop from state sector, Ministry of Trade agreement signing (sometimes yes or no) sometimes ad hoc. Price attractive palm oil comes this way.

B. Another flow where township society in Rangoon division signs contract with oil producing divisional syndicate or directly with the township for producing oil - in Magwe, Mandalay, Sagaing, Pegu division.

C. Last flow would be where the retail shop or mini market buys private oil and seels it.

The inter coop agreement.

The fulfillment is uncertain sometime, oil is not available at the time of agreement sign, about 2 months before the signing, the producing Coops & state coop will distribute a list of goods to central Coop society, which transmits to drosional Coop syndicate then to township and then supposed by down to primary level. The primary sec. submits a list of demands compiled at township level and

goes straight to central Coop society by passing the syndicate. The Coop demanding committee will then balance the contract between offer & demand, if demand is higher than the offer, there becomes a quota system based on # of households, and population. This is done in case of edible oil, soap, sugar, milk powder, kerosene, candles and cigarettes. If demand is lower than the offer, then they take only the demand. Sometimes township Society allocate supplies items to primary societies.

7. When was the last time you had oil to distribute ? When was the time before that?

They have had oil to distribute all along but there is not enough or the price is too high.

8. How many primary consumer cooperatives are there in Rangoon division? How many minimarkets are there?

1302 primary consumer societies 52 minimarkets.

9. How does the Rangoon syndicate procure goods for the consumer Coop stores and minimarkets? Do the consumer coops submit orders or does the syndicate allocate a set amount to each ?

The syndicate has nothing to do with the consumer coop society. The township allocates amount. The syndicate procures goods for its own outlet and acts as a township in that respect.

10. How many of the minimarkets purchase from private sources ?

All minimarkets purchase from private sources. The range of goods requires it. There are differences in degree. Cooking oil.

In one Latha township has wholesale foodstuffs - onions chillies, beans pulses etc. The minimarkets do not necessarily use that wholesale, they have the option to go to private, get credit, after sale services to return no good merchandise. EC members may buy from private to obtain personal benefit kick backs.

11. Where doe the Rangoon syndicate obtain oil and oilseed for processing?

Don't know.

12. What price do you pay ?

Don't know.

13. What price did you pay the last time you purchased oil ?

Don't know.

14. What kind of arrangements for financing investments for working capital, merchandize, and facilities? Can you give some examples?

Most of financing is from the state commercial bank MEB, Myanma Economic Bank, Authorized by dept. of Coops project paper economic rationals, internal rate of return - the dept sometimes pitches in and helps operating ratio project ratio, pay back IRR equating cost and benefit has to be submitted within a 4 year plan, and into the 1 year. No collaberal, no security. Pay interest.

Short term will in year

Medium term will " 5 years

Interest 8.5%

Rangoon has done a # of proejects which have been submitted for loans.

15. Do you think the Rangoon division syndicate can financially manage a 4 million dollar oil refinery ?

The Rangoon syndicate is weak. Turnover of executives is quite high. Mr. Lloyd would support me, mean management. They would say they have the capability. worst case - project collapse

Example: Want to use a steamer for goods/passengers E.C. changes. new group don't know how to take care of it. By the time the loans are due they can't pay interest so they cannibalize the steamer. Inputs would come in from MOC to be sure that it not fail.

16. What construction activities has the Rangoon syndicate undertaken before? Were there any lessons learned from that experience that we could use in planning construction of an edible oil refinery ?

Construction Activities: Not resp of syndicate. Primary construct societies in the Insti. of Tech, Civil Eng, Electrical Eng Soc & Architectural Eng Soc. They are doing most of the work. subcontract to privates, individuals carpenters/contract - closed shop- to keep from sharing the benefits.

17. Describe the administrative structure of the syndicate.

Admin- not sure

18. How do you decide what the retail price for edible will be ?

They don't decide. The primary society themselves.

19. How does this price compare to the price outside the cooperative sector?

N.A.

20. Why was the syndicate reorganized from two to one ?

Rangoon syndicate was divided into 2 syndicates #1 & #2 and it recently merged into one. ^{L. 2. 1. 1. 1.} felt it was not correct to 2 different syndicates for administrative efficiency, streamlining and rationalization.

STATEMENT SHOWING PROFIT AND LOSSAS ON 31st AUGUST 1983.

Kyats in Thousand

Description	Total Income	Total Expenditure	Net Profit/ Loss	Operating Ratio
Vegetable and Garden Product	1290	540	(+) 750	41.84%
Services	247	107	(+) 140	43.12%
Printing	851	708	(+) 143	83.15%
Sales Emporium	4918	5111	(-) 193	103.92%
Export and Import	4509	4596	(-) 87	101.93%
Cold Storage and coastal Transport	201	281	(-) 80	139.7%
Headquarter	3	359	(-) 356	-
Total	12019	11702	(+) 317	97.36%

1/1 to 8/31/83 = 5 mos.

The Condition of Co-operative Clinics

(30-6283)

	Particular	A/U	Quantity
1	Number of Clinics	No	552
2	Doctors	No	1008
3	Nurses	No	655
4	Compounders	No	94
5	Mid-wives	No	53
6	Laboratory technicians	No	33
7	Indigenous Medicine Practitioners	No	10
8	Number of treated Patients (in thousand)	No	1612
9	Income (for the 1st Quarter of 1983-84)	kyats (000)	16540

The number of staff in each clinic varies according to its size. For instance a large clinic may consist of about (7) persons while the small ones compose of only two persons, the doctor and his assistance.

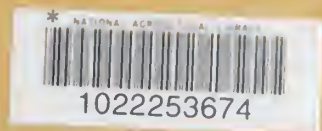
The Condition of Co-operative credit Societies

(30-6-83)

Sr. No.	Particular	A/U	Quantity
1.	Number of credit Societies	No	2666
2.	Members	No	763999
3.	Shares	kyats(000)	18088
4.	Savings (3% interest rate annually)	"	350393
5.	Loans (6% interest rate annually)	"	187724
6.	Income (for the 1st Quarter of 1983-84)	"	3954

Remarks.

Each member has to contribute one share to the value of
kyats 30 .



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